ENGINEERING NEWS-RECORD

EIGHTIETH YEAR OF PUBLICATION

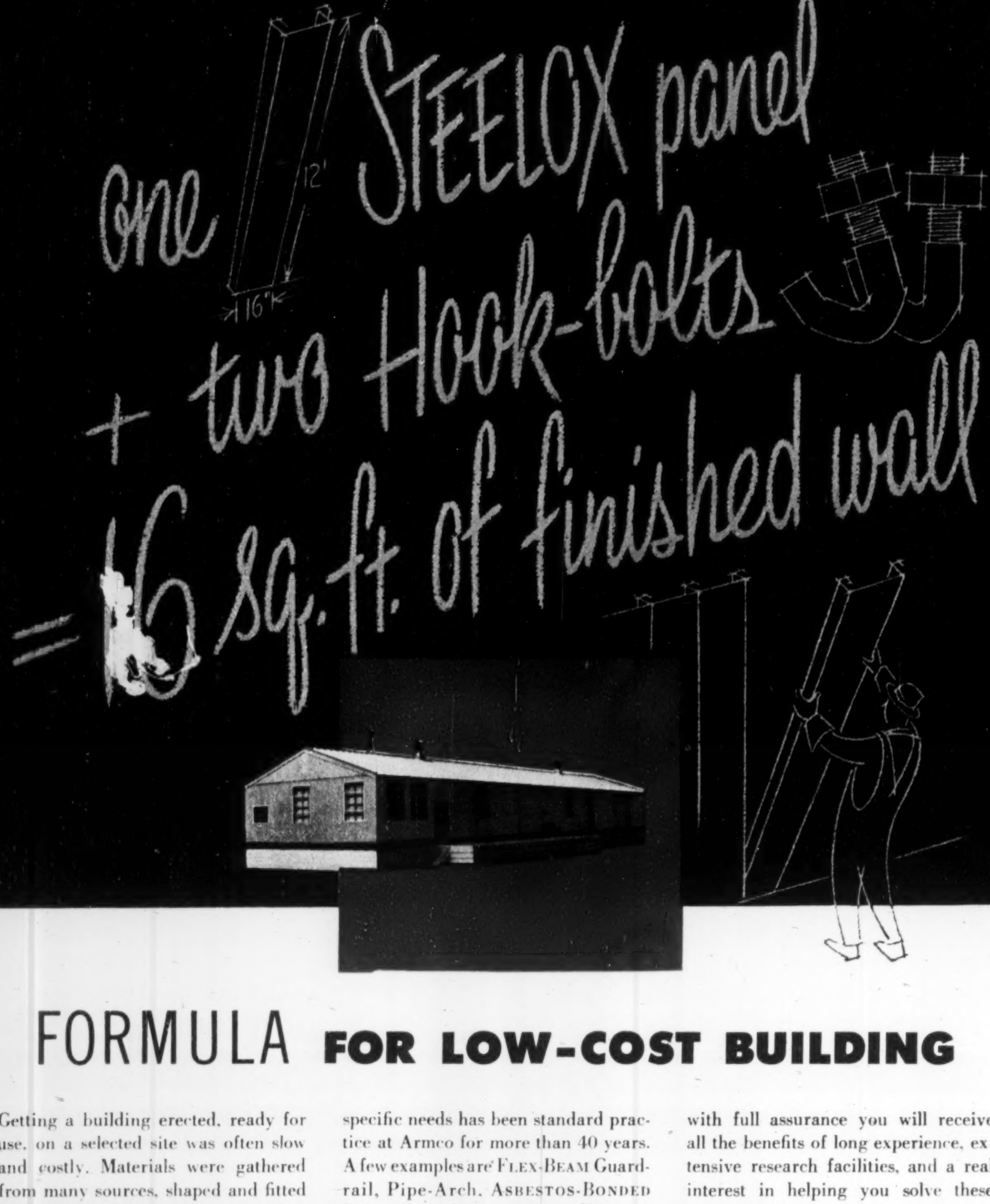
[illegible]

★

★

A McGRAW-HILL PUBLICATION

E B POWER GS N
UNIVERSITY MICROFILMS IN
313 N 1 ST
ANN ARBOR MICH



FORMULA FOR LOW-COST BUILDING

Getting a building erected, ready for use, on a selected site was often slow and costly. Materials were gathered from many sources, shaped and fitted on the site by skilled labor and subject to the vagaries of weather.

All this was changed with the Armco STEELOX method of construction. Jointed STEELOX Panels provide both structural support and finished surface. Erection is simplified, appearance improved and weather-tight construction assured. Experience is unnecessary. Workmen quickly join the panels into a maintenance-free structure that is permanent yet has high salvage value.

Providing better products to meet specific needs has been standard practice at Armco for more than 40 years. A few examples are FLEX-BEAM Guardrail, Pipe-Arch, ASBESTOS-BONDED Pipe and sturdy MULTI-PLATE Bridges.

Today you can bring your drainage and construction problems to Armco with full assurance you will receive all the benefits of long experience, extensive research facilities, and a real interest in helping you solve these problems.

Armco has a complete range of engineered products and convenient, authoritative data to help you. If your problem is difficult or unusual, why not talk it over with us.

ARMCO

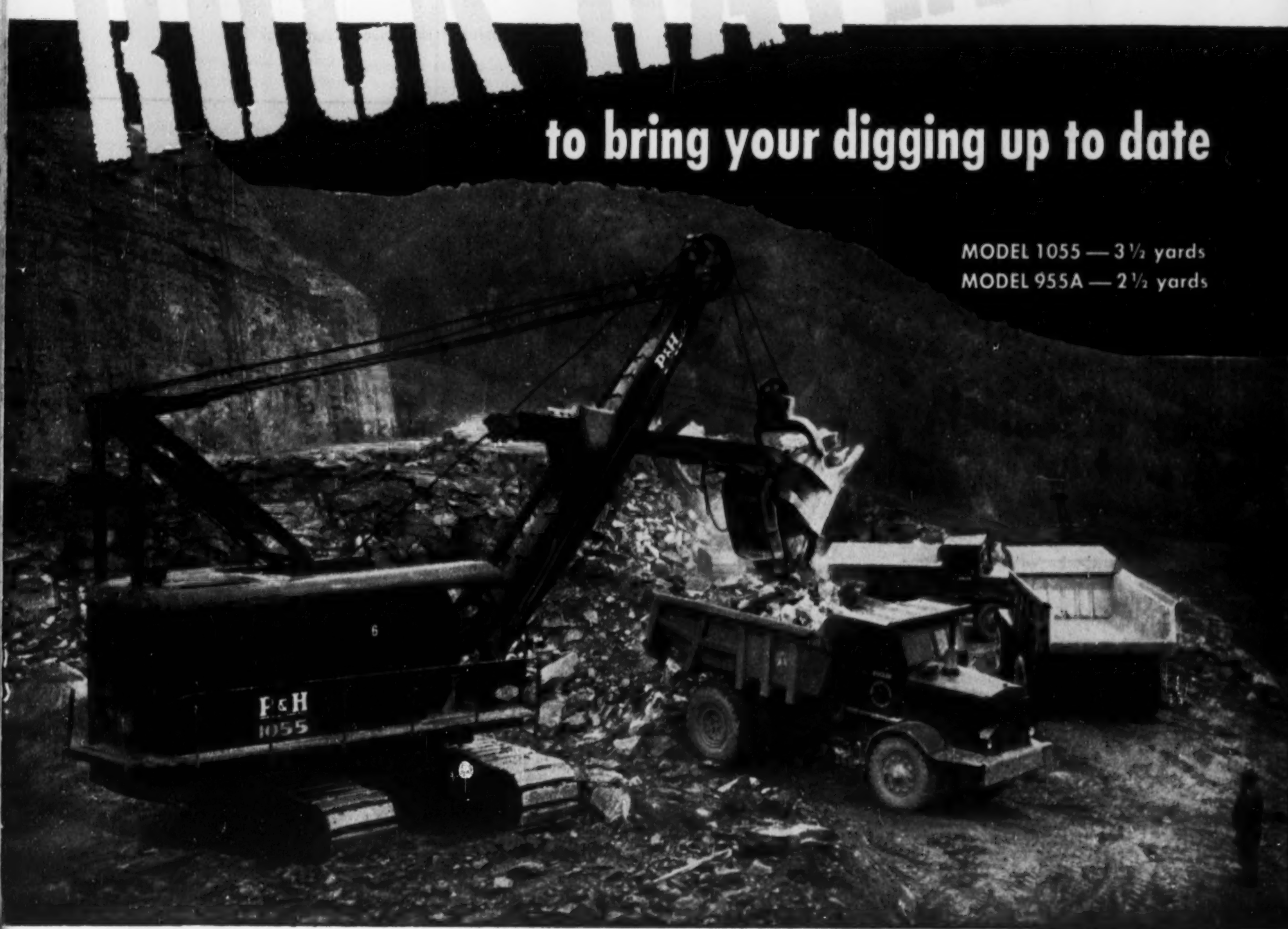
ARMCO DRAINAGE & METAL PRODUCTS, INC.

MIDDLETOWN, OHIO ★ OFFICES AND PLANTS IN PRINCIPAL CITIES
SUBSIDIARY OF ARMCO STEEL CORPORATION
Structural Plate Pipe and Arches ★ Corrugated Metal Pipe ★ Welded Steel Pipe
FLEX-BEAM Guardrail ★ Water Control Gates ★ Retaining Walls ★ STEELOX Buildings
Sheeting ★ Tunnel Liner ★ Subdrainage Pipe ★ End Sections ★ Pipe Piling and Pile Shells

ROCK RATED

to bring your digging up to date

MODEL 1055 — 3½ yards
MODEL 955A — 2½ yards



You have the jump on costs when your new P&H takes over the tough digging jobs. Why? Because there's no other machine to match its performance. You have the speed — a 15% to 25% faster digging cycle — for bigger production. You have the all-welded strength to take shock loads that would K.O. less rugged machines. You have the stability to exert more power at the tooth point. That gives you added capacity.

If you're ready to cut your costs—these P&H's are ready to help you.

P&H MAGNETORQUE*

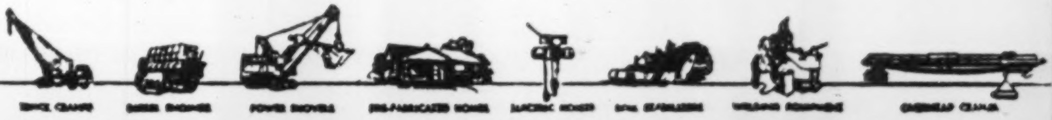
ELECTRIC SWING

the greatest shovel improvement in 20 years. It's smoother, faster, more dependable. It eliminates the old swing frictions with their constant headaches and replacement costs. Magnetorque lasts the life of your machine. You should know the facts about it!

**T.M. of Harnischfeger Corporation for electro-magnetic type coupling.*

P&H LARGE EXCAVATOR DIVISION
HARNISCHFEGER
CORPORATION
MILWAUKEE 46, WISCONSIN

the **P&H** *line*


TRUCK CRANES
DIESEL ENGINES
POWER SHOVELS
PRE-FABRICATED HOMES
ELECTRIC HOISTS
SOIL STABILIZERS
WELDING EQUIPMENT
OVERHEAD CRANES

New design doubles life of

crawler
tracks

There are two reasons for the spectacular record of KENSINGTON crawler tracks on Minnesota's rugged Iron Range . . . (1) improved design, and (2) superior wear-resisting alloyed manganese steel.

First . . . KENSINGTON engineers have designed a one-piece rail that ends the twisting and weaving which contributes to so much wear in ordinary tracks. Further rigidity and near-perfect alignment is gained by use of heat-treated alloy pins pressed tightly in place under high pressure. Grousers are heavied-up at all vulnerable parts to resist bending and breaking.

Yet, despite these important design changes, KENSINGTON *rails and grousers are interchangeable with the original parts furnished with your tractor.*

Second . . . the hard, KENSINGTON-developed alloyed manganese steels actually fight back against wear. They constantly develop extra surface hardness when exposed to friction, abrasion and impact.

KENSINGTON tracks arrive from the factory ready-assembled.

Learn for yourself how KENSINGTON tracks will lower your crawler maintenance costs and improve your operating efficiency. Coupon will bring details.

SUPERMANG
CRC
Kensington
STEEL COMPANY
SUBSIDIARY OF POOR & CO., CHICAGO

KENSINGTON STEEL CO.
Dept. E, 505 Kensington Ave., Chicago 28, Ill.

● Please send information on crawler tracks for tractor described below. I understand I will be under no obligation.

Make of tractor__________
Model__________ No. tracks per belt__________
Width of grouser__________
NAME__________
COMPANY__________
ADDRESS__________
CITY__________ ZONE__________
STATE__________

ENGINEERING NEWS-RECORD

ABP Member ABC

Editorial offices: 330 W. 42nd St., New York 36, Tel. LOngacre 4-3000

Number of copies of this issue printed: 61,596

Contents on page 17

Waldo G. Bowman

Editor

E. E. Halmos Jr	*Managing Editor*
J. J. Christie	*Asst. Managing Editor*
V. T. Boughton	*Transportation, Power*
F. S. Merritt	*Architectural, Structural*
R. H. Dodds	*Contracting, Heavy Construction*
S. C. Jensen	*Materials and Equipment*
A. J. Fox Jr	*Hydraulics, Water Supply, Sanitation*
G. T. Orick	*Labor, Men and Jobs*
J. P. Chamberlain	*Business and Finance*
R. W. O'Neill	*International, National Affairs*
J. R. Owen	*Municipal*
J. R. Carr	*Midwest (Chicago)*
L. L. Wise	*West (San Francisco)*
N. A. Bowers	*Consultant (San Francisco)*
Elsie Eaves	*Business News Department*
J. H. Webber	*Economics*
J. A. Mahoney, M. O. Wetzel	*Construction Reports*
M. W. Roessler, E. R. Huber, Dori Weiss	*Statistics, Costs, Prices*
H. G. Compton	*Photography*
M. V. Leggiero	*Makeup*
T. D. MacGregor, B. J. Lamb, B. B. Bagley	*Copy, Rewrite*
L. T. Tarpey, J. C. Greenough	*Printing*

Washington News Bureau, Room 1189 National Press Building: G. B. Bryant, Jr., *Manager,* Glen Bayless, A. E. Adams, Jay Flocken, Boyd France, Sam Justice, W. H. Kearns, J. L. Kent, Craig Lewis, D. O. Loomis, Jesse Mock, Gladys Montgomery, A. L. Moore, M. A. Reichek, Caroline Robertson, V. B. Smith.

Domestic News Bureaus: Atlanta, 1321 Rhodes-Haverty Bldg., E. D. White; **Cleveland,** 1510 Hanna Bldg., R. A. Cochran; **Detroit,** 856 Penobscot Bldg., J. C. Jones Jr.; **Houston,** 1303 Prudential Bldg., J. A. Lee; **San Francisco,** 68 Post Street, M. C. Ralston; **Los Angeles,** 1111 Wilshire Blvd., John Shinn; **Seattle,** 6040 Fifth Ave., N.E., Ray Bloomberg.

Correspondents: Albany, Albuquerque, Augusta, Me., Austin, Boston, Boulder, Baltimore, Birmingham, Bismarck, Charleston (W. Va.), Charleston (S. C.), Columbus, Cincinnati, Cleveland, Chicago, Cheyenne, Dallas, Denver, Detroit, Durham, Harrisburg, Helena, Houston, Hartford, Indianapolis, Jackson, Miss., Jacksonville, Jefferson City, Kansas City (Mo.), Lansing, Lincoln, Little Rock, Miami, Memphis, Minneapolis, Montgomery, Milwaukee, New Orleans, Norfolk, Omaha, Oklahoma City, Philadelphia, Pittsburgh, Portland (Ore.), Providence, Phoenix, Pierre, St. Louis, Schenectady, Syracuse, St. Paul, Seattle, Salt Lake City, Spokane, Topeka, Trenton, Wilmington. **Canada:** Montreal, Toronto, Ottawa, Victoria, Regina.

Foreign News Bureaus: J. K. Van Denburg, Jr., **New York;** G. W. Schroder, **Frankfurt;** Nathaniel McKitterick, **London;** Herbert Leopold, **Manila;** John Wilhelm, **Mexico City;** Ross Hazeltine, **Paris;** A. W. Jessup, **Tokyo;** L. I. Holmes, **Sao Paulo. Correspondents:** Amsterdam, Athens, Bangkok, Bogota, Bombay, Brussels, Buenos Aires, Caracas, Copenhagen, Geneva, Havana, Helsinki, Johannesburg, Lima, Madrid, Melbourne, Oslo, Rome, Stockholm, Sydney, Tehran, and 21 other principal cities and countries.

Robert F. Boger

Publisher

January 28, 1954 ENGINEERING NEWS-RECORD Vol. 152, No. 4

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Donald C. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Subscriptions are solicited only from persons with an identifiable commercial or professional interest in construction and building. Position and company connection must be indicated on subscription orders.

Single copies 35¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada, $8.00 a year; $12.00 for two years; $16.00 for three years. Other Western Hemisphere countries, $15.00 a year; $25.00 for two years; $30 for three years. All other countries, $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1879. Printed in U. S. A. Copyright 1954 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.

NOW IT'S EIGHTEEN NORTHWESTS

18

Only the most satisfactory service could sell a man into the purchase of 18 machines of one make. The Leo Butler Co. of College Park, Md., has used Northwests for many years and the fact that they are now operating their 18th Northwest is a testimonial to the satisfaction Northwests give.

Not only has the Butler organization used Northwests consistently but they have experience with every type of Northwest built. They know Northwest Cranes, Draglines, Shovels, Pullshovels and Truck Cranes. They have used them all and they know all their advantages.

The Northwest brings you a combination of features found in no other similar equipment. The Northwest Dual Independent Crowd utilizes force most other independent crowd shovels waste. Uniform Pressure Swing Clutches eliminate the jerks and grabs that set a load to swinging. The Cushion Clutch eliminates shock overloads before the overload can reach machinery. Ball and roller bearings on all high-speed shafts, cast machinery bases and side frames, positive traction on both crawlers while turning and other features combine to increase output and reduce maintenance.

Ask yourself why one out of every three Northwests sold is a repeat order and then come in and let a Northwest man tell you about it.

NORTHWEST ENGINEERING CO.
1502 Field Bldg., 135 South La Salle St.
Chicago 3, Illinois

for
LEO BUTLER
College Park
Md.

LEO BUTLER
CO

NORTHWEST

CRAWLER and TRUCK MOUNTED SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

Has Your Shovel Stood the ROCK TEST

SEAL OUT THAT DIRT!

YOU CAN EASILY and effectively protect bearings against dirt. Just lubricate with *Texaco Marfak*. This remarkable adhesive-cohesive lubricant — the world's finest protection against wear and rust — *stays in* the bearings, seals out both dirt and moisture. With *Texaco Marfak,* bearing life goes up and maintenance costs come down.

In wheel bearings, you get the same fine protection with *Texaco Marfak Heavy Duty* — and no seasonal change is ever necessary. Enjoy extra thousands of miles of protection between repackings, longer bearing life and greater braking safety.

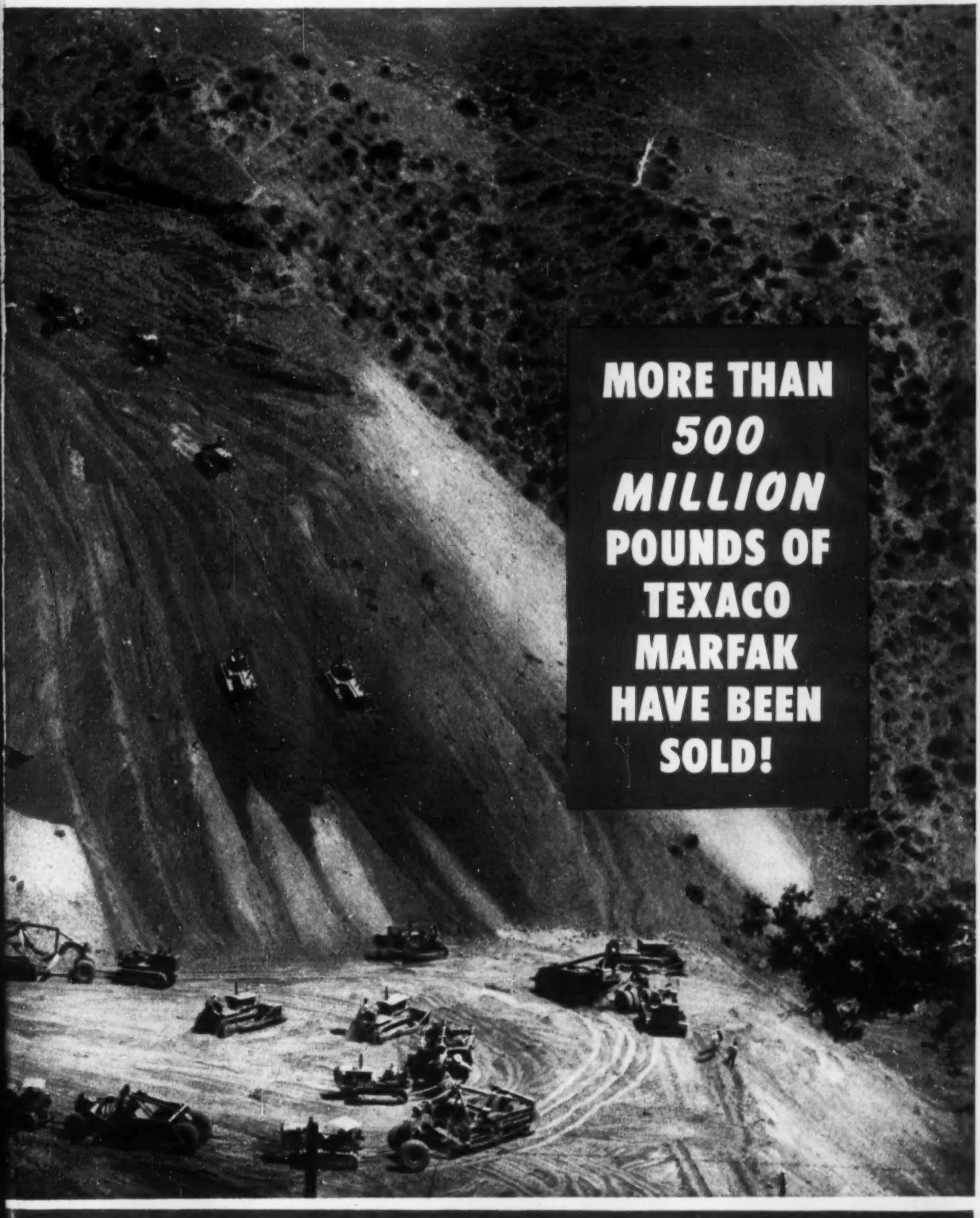
For crawler tracks, use *Texaco Track Roll Lubricant.* It keeps out the dirt and mud that cause wear and rust, adds greatly to roller life.

Let a Texaco Lubrication Engineer explain the Texaco Simplified Lubrication Plan — how you can handle *all* major lubrication with *no more than six* Texaco Lubricants. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, New York.

TUNE IN:
METROPOLITAN OPERA
radio broadcasts
every Saturday afternoon.
See newspaper for
time and station.

TEXACO REG. T. M.

TEXACO


MORE THAN
500
MILLION
POUNDS OF
TEXACO
MARFAK
HAVE BEEN
SOLD!

Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

Our plans didn't cover bungling... or a leaky roof!

(A true story based on Company Files #185B4921 and #185B5145)

We're consulting engineers. So, since drawings and tracings are the foundation of our business, their loss or damage could cost us a great deal.

Recently, we faced that fact twice within three months.

First, a client requested that we deliver a set of drawings before we had a chance to run off blueprints. While they were in his office, a "green" clerk all but ruined one drawing. In drafting time alone it was worth $800.00.

The second loss *might* have been costly, too. A drawing and tracing for a bridge job were ruined by a leak in the roof of an engineer's shack.

Fortunately we carried a Records Destruction Policy in the Hartford Accident and Indemnity Company which paid the entire cost of replacing *both* of these drawings.

In your own contracting operations, you *know* how frequently blueprints, engineering plans, drawings and tracings are exposed to damage or loss.

You know, too, that you'll have to replace them if they're destroyed.

But have you ever considered how much that can cost you? Even a series of small losses can add up to important money . . . one large one can run into thousands of dollars.

That's why it is virtually a *business necessity* for contractors to have Records Damage Insurance that will provide the money to restore or replace plans, blueprints, etc.—your own, or those that have been entrusted to you.

The cost of this specialized insurance is moderate, the protection it provides is great. Ask your Hartford Accident and Indemnity Agent or your insurance broker for full details. Or write us for a copy of Bulletin 76059.

Year in and year out you'll do well with the

Hartford

Hartford Fire Insurance Company • Hartford Accident and Indemnity Company
Hartford Live Stock Insurance Company • *Hartford 15, Connecticut*

READER COMMENT

World's greatest river

Sɪʀ: In your Oct. 22, 1953, issue, p. 29, you state "The Columbia feeds more water into the ocean than any river in the world except the Amazon."

I had always understood that the Congo River in Africa came after the Amazon in volume of flow. Further, even in North America, the McKenzie and Yukon rivers both exceed the Columbia in volume.

For my own information, I should appreciate a table showing the volume of the world's major rivers on a cfs basis. I realize that some of these rivers fluctuate greatly through the year. Your data probably would show a mean flow.

Eʀᴡɪɴ M. Rᴏɢᴇʀs
Birmingham, Mich.

Sɪʀ: Compare the discharges given below with those of the Columbia River (ENR, Oct. 22, 1953, p. 29). These estimates (from a preliminary list compiled from various sources by the U.S.G.S.) may not be exact but those for the Mississippi and the St. Lawrence should be.

River	Continent	Avg. discharge (1,000 cfs.)
Amazon	S.A.	*
Congo	Afr.	1,600
Yangtze	Asia	750
Gramaputra	Asia	700
Ganges	Asia	660
Mississippi	N.A.	650
**		
St. Lawrence	N.A.	500
Columbia	N.A.	275

* Between 3.5 and 7.0 million cfs
** Omitted from the table are the following rivers all with discharges greater than the Columbia and less than the Mississippi: Yenisei, Orinoco, Leno, Parana, Irrawaddy, Ob, Mekong, Amur, Tocantins, and Volga.

B. E. Jᴏɴᴇs
Washington, D. C.

[Eᴅɪᴛᴏʀ's Nᴏᴛᴇ—The ENR staff member who prepared the article on The Dalles Dam is willing to eat crow for not checking the statement that was taken from a usually "reliable source" which is better not mentioned here. The "source" has admitted the error and is also willing to eat crow.]

Partners named

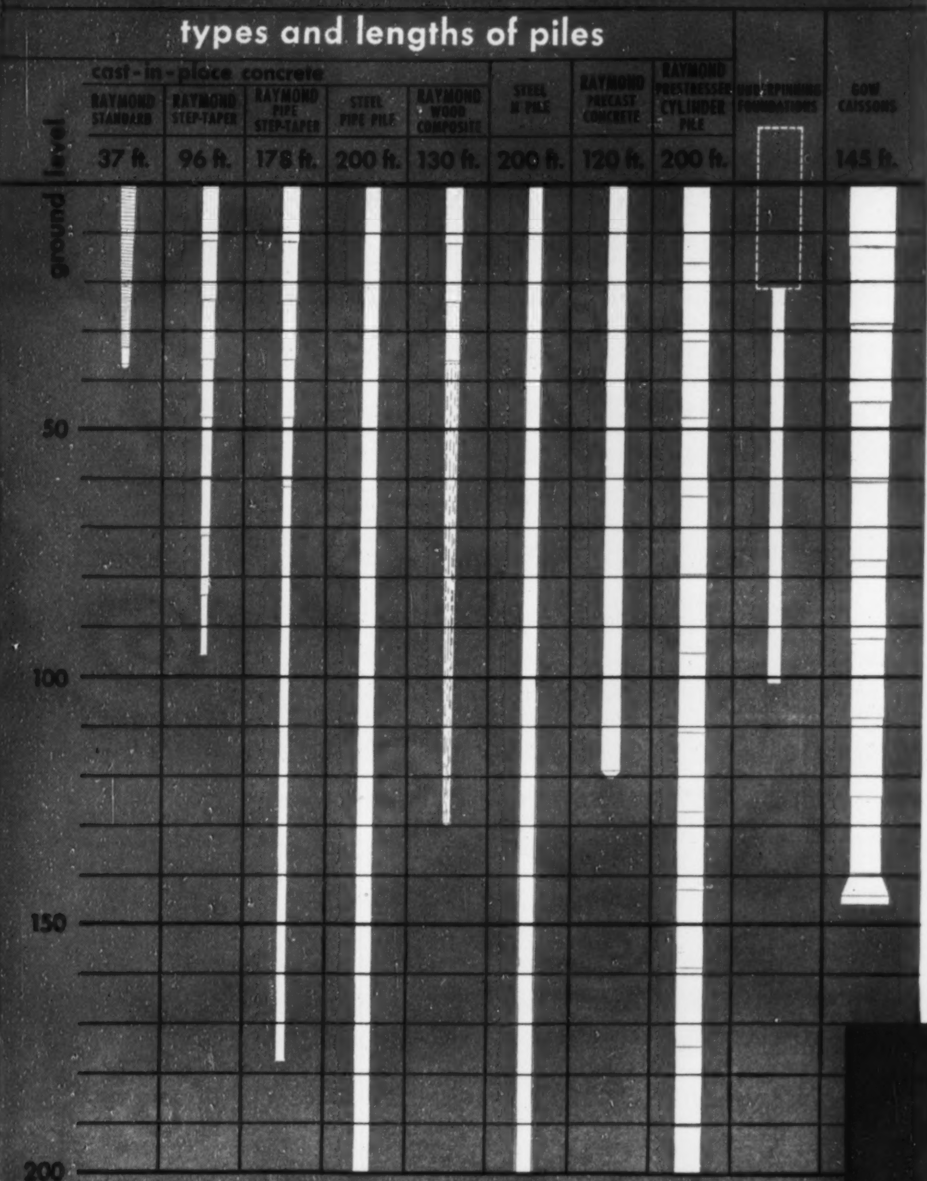
Sɪʀ: Reference is made to the article on Page 39 of the Engineering News-Record of Nov. 26, 1953, on the subject of Automatic Welding of Tunnel Lining Sections of the Palisades Dam. As a member firm of the joint venture contractors of the Palisades Dam,

(Continued on page 10)

Raymond Features!

NUMBER TWO OF A SERIES

A Raymond PILE TO MEET EVERY NEED



WHETHER you are building a bridge, a skyscraper, a wharf or a dam, there's a Raymond Pile designed to fit your particular needs. For the past 56 years the Raymond Concrete Pile Company has been installing foundations around the world under a wide variety of soil conditions.

RAYMOND'S DOMESTIC SERVICES . . .

AROUND THE WORLD · FOUNDED 1897

Soil Investigations . . . Foundation Construction . . . Harbor and Waterfront Improvements . . . Prestressed Concrete Construction . . . Cement-mortar Lining of Water, Oil and Gas Pipelines, In Place.

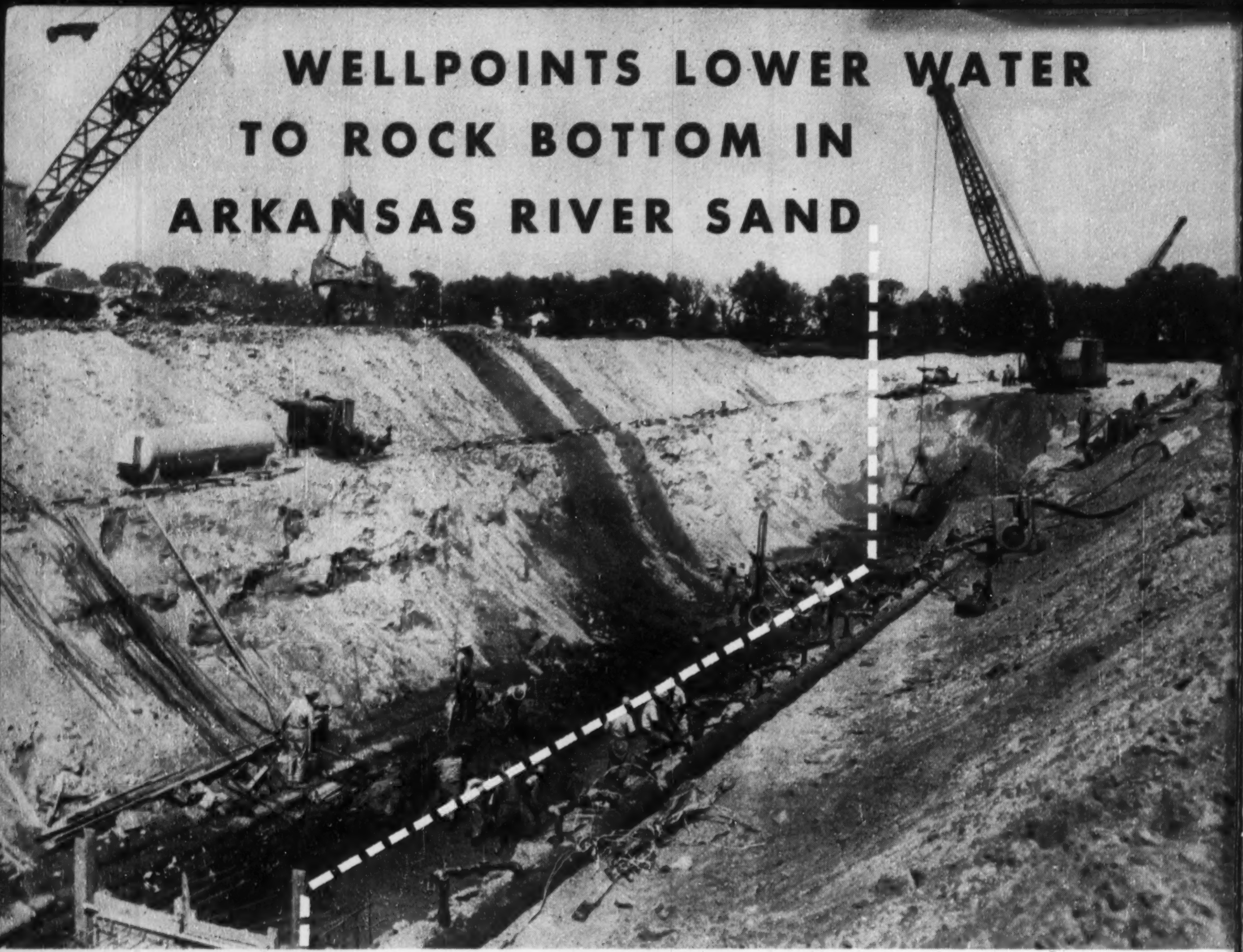
RAYMOND'S SERVICES ABROAD . . .

In addition to the above, all types of General Construction.

Raymond
CONCRETE PILE CO.

140 CEDAR STREET • NEW YORK 6, N. Y.

Branch Offices in Principal Cities
of the United States,
Central and South America



WELLPOINTS LOWER WATER TO ROCK BOTTOM IN ARKANSAS RIVER SAND

PROJECT: Construction of two concrete conduits, 36″ wide, 1900′ long, under the Arkansas River, to serve Tulsa, Oklahoma's new sewage disposal plant.

The BIG PROBLEM on this deep excavation was WATER—14′ of it in sand and gravel overlying shale rock.

It was SIMPLY SOLVED by installing a Moretrench Wellpoint System which pulled the water down to shale with these immediate results:

Excavation was handled quickly—in the dry.

Rapid job progress, essential during low river stage, was assured.

Sheeting was completely eliminated. Banks sloped.

Time and money were saved.

Need help on your wet job? Call us! We'll be glad to talk it over.

MORETRENCH CORPORATION

90 West St.
New York 6

4900 S. Austin Ave.
Chicago 38, Illinois

7701 Interbay Blvd.
Tampa 9, Florida

315 W. 25th St.
Houston 8, Texas

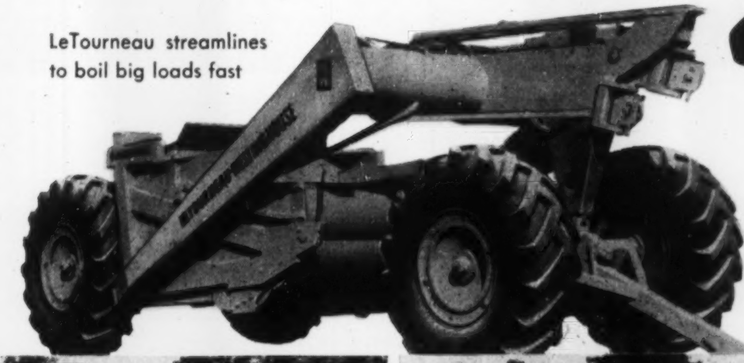
Rockaway
New Jersey

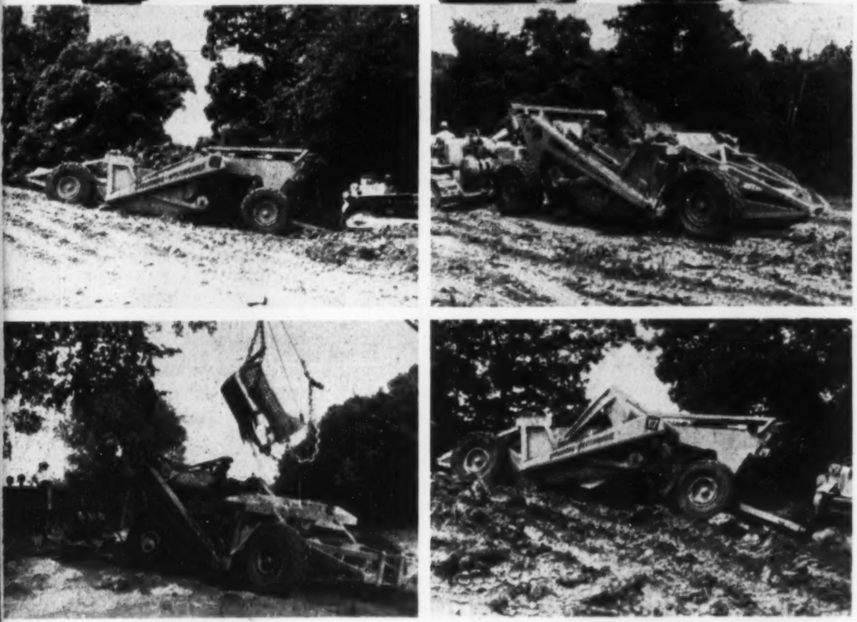
Western Representative: Andrews Machinery of Washington, Inc., Seattle 4, Washington

Canadian Representative: Geo. W. CROTHERS Limited, Toronto, Ontario

Save up to 25%

LeTourneau streamlines
to boil big loads fast





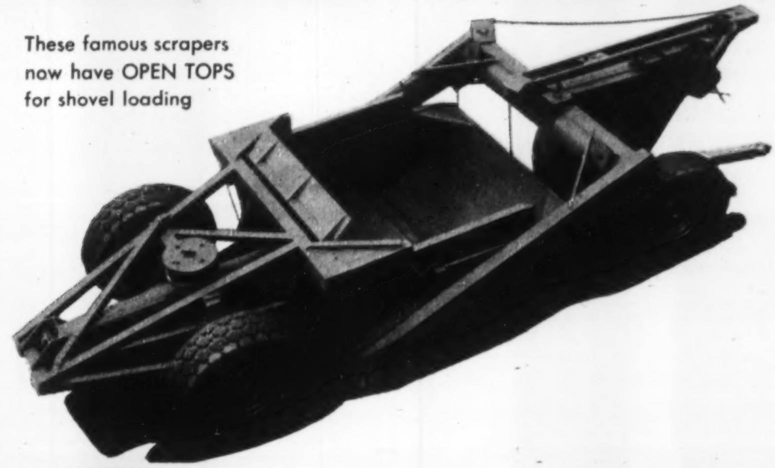
Why pay more when you can buy *the best scraper on the market* at savings from 9% to 25%?

You have used them . . . you have watched them on practically every scraper job you've ever seen! Over 35,000 scrapers all over the world prove LeTourneau-Westinghouse as "top quality".

This famous, world's most popular, LeTourneau-Westinghouse Carryall Scraper costs less to buy, less to maintain . . . loads faster, boils better, heaps a bigger load. Why pay more for less?

Available in a complete range of sizes from 10½ to 28½ yards heaped for use with both track-type tractors and electric-control Tournatractor. Don't buy any scraper (or other tractor equipment) till you've checked our prices!

These famous scrapers
now have OPEN TOPS
for shovel loading



More practical experience behind these scrapers than any on the market!

Since 1920

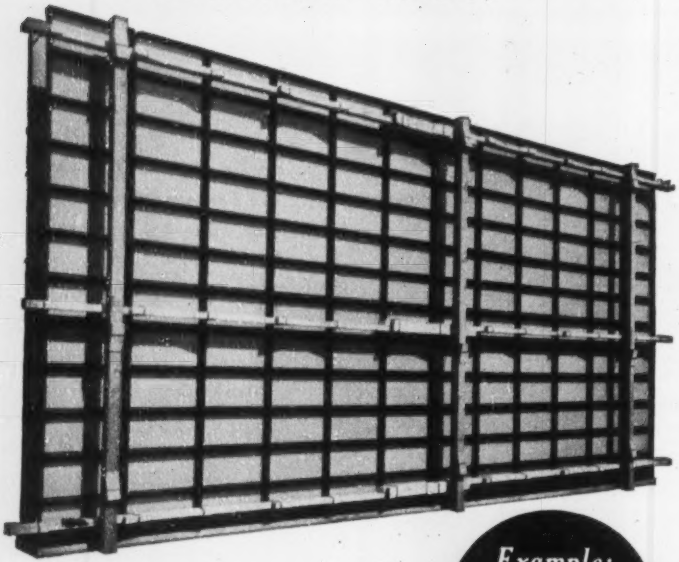
Carryall — Trademark Reg. U. S. Pat. Off.
Tournatractor — Trademark 0-497-G-b

LeT W

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

UNI-FORM Concrete Forms GUARANTEE Material and Labor Savings on Your Concrete Jobs!



Example:
This wall—24 ft. long x 12 ft. high—can be UNI-FORMED for 50% less than with conventional forms.

- ONE SIDE ALIGNMENT and BRACING SAVES UP TO 50% MATERIAL and LABOR
- USE STANDARD LUMBER LENGTHS—NO CUTTING OR FITTING—GET MAXIMUM LUMBER RE-USE
- SIMPLIFIED ASSEMBLY permits inexperienced crews to form fast . . . accurately . . . no waste motion

Universal Concrete Form Specialists will assist your men On The Job TO INSURE MAXIMUM FORMING SPEED . . . EFFICIENCY . . . SAVINGS

RENT with a Purchase Option . . . Try Before You BUY

Write for the new UNI-FORM catalog

UNIVERSAL FORM CLAMP CO.

GENERAL OFFICES AND FACTORY: 1238 N. Kostner • Chicago 51, Illinois
OFFICES AND WAREHOUSES:
CLEVELAND, OHIO • BALTIMORE, MARYLAND • HOUSTON, TEXAS
SAN LEANDRO, CALIFORNIA • LOS ANGELES, CALIFORNIA
SERVICE WHEREVER YOU BUILD . . . COAST TO COAST
DISTRIBUTORS IN PRINCIPAL CITIES

Mr. UNI-FORM

Copyright 1954 by UNIVERSAL FORM CLAMP CO., Chicago 51, Ill.

we regret that the names of the partners comprising the Palisades Contractors, that is, J. A. Jones Construction Company of Charlotte, North Carolina and Seattle, Washington, and the Chas. H. Tompkins Co., of Washington, D. C., were not mentioned in the article. The contract is not held in the name of the Palisades Contractors, but jointly by the J. A. Jones Construction Company and the Chas. H. Tompkins Co.

If there are any further articles on this project, we should appreciate it if the names of the contractors as stated above be mentioned, or that it read: "Palisades Contractors, a joint venture consisting of J. A. Jones Construction Co. and the Chas. H. Tompkins Co."

FRANCIS M. TOMPKINS
Vice-President
Chas. H. Tompkins Co.

Monoply and competition

SIR: I note with interest the appointment of Admiral Ben Moreell to the new Hoover Commission, especially since I remember reading, a year or so ago, a pamphlet in which he contrasted inefficient "governmental" enterprise with efficient "private" enterprise. I should like to point out that what may have made the difference was not whether the businesses were publicly or privately owned, but whether there was a monopoly or whether there was real competition. He contrasted a government monopoly with a private industry that has long been highly competitive.

He might better have compared a privately-owned industry that has a monopoly with one that is competitive. The Bell Telephone system (long an almost complete monopoly) might, for example, be compared with the electric power industry (largely privately owned, but less monopolistic). The phone company charges the average subscriber more than he pays for his electricity though its real costs surely must be less than the power company's. It feels so secure in its monopolistic position that it recently sought a nation-wide raise in its already exorbitant rates.

Public power should be preserved as a yardstick—or, more important—as competition, but it should be an *honest* yardstick and *fair* competition. By the same token, public-power advocates should never be permitted to nationalize the power industry. To preserve free competition, the boundaries between public and private power should not be rigidly delineated.

(*Continued on page 12*)

ADVERTISEMENT

Effect of Proper Distribution of Mass in Shovel-Crane Performance

by O. VON MEHREN*

The operation of a power crane or shovel is essentially cyclical. It involves repeated accelerations and decelerations of parts or of the whole assembly. Therefore, the time interval of the operating cycle or the "speed" of the excavator is not dependent upon the acceleration or speed of any one function alone, but upon the interrelation of all functions and the proper proportioning and balancing of power and speed between them.

It is for this reason that the printed specifications of an excavator seldom are an indication of its "speed". It serves no purpose to have a very high hoisting speed, if the swing is so sluggish that the dipper is raised to dumping height long before the machine can be rotated to dumping position. Neither does it aid "speed" to have a high swing speed if the swing acceleration is such that the full swing speed cannot be realized on the partial and short swings that occur in actual operation.

One of the most important factors in the operation and "speed" of an excavator is the distribution of the mass of the machine because of its dual effect on (1) the forward external moments to which the machine is subjected and (2) its effect on the swing acceleration and speed.

To offset the forward or "tipping" moment of the machine, a balancing or rear moment is developed by the distribution of masses in the rear which involve primarily the location of machinery and counterweight.

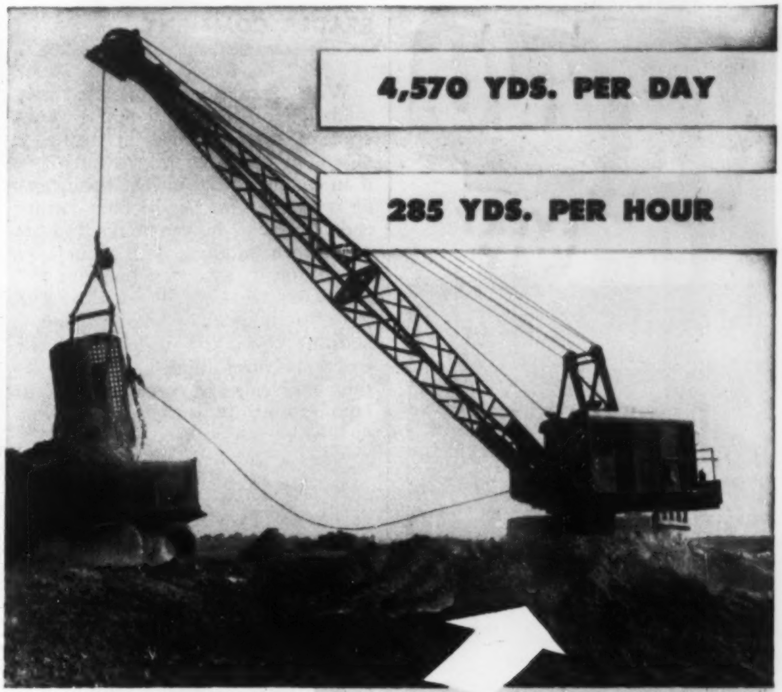
In order to balance the forward moment, the rear mass (M) and its radius (R) may be varied in direct proportion to each other, i.e., a back moment (MR) can be obtained by any combination of M and R that give the same product.

When the swing operation comes into play, however, the swing time cycle, in its accelerating and decelerating phases, depends on the moment of inertia of the whole turntable, which is expressed as MR^2; i.e., the accelerating and decelerating phases of a swing cycle vary in proportion to the square of the radius-R.

The proper balance between these two terms, MR and MR^2, is what determines in the last analysis a satisfactory or unsatisfactory design. All other factors being equal, machines with light masses at large radii may be relatively light-weight machines but slow in swing cycle, unless unduly large accelerating swing torques are supplied. Conversely, a machine with heavy masses at short radii may adversely affect other functions even if it proves to have a faster swing cycle.

---

*Chief Design Engineer, The Thew Shovel Co.



CHECK YOUR DRAGLINE PRODUCTION WITH THIS...

LORAIN 820

When J. H. and N. M. Monaghan of Derby, Colorado, bid this 172,000 yd. borrow pit excavation, they knew it would take a high-speed dragline to make money for them. A long-crawler, Lorain-820K, with a 3-yd. bucket was their choice. Working two shifts, this one Lorain keeps six 10-yd. dump trucks busy handling a daily average of 4,570 yards of highway fill. Daily production has reached a high of 4,700 yards. That's big dragline production . . . and there are important reasons why this Lorain is a fast, maneuverable, low-cost performer.

Engine "hang-on" and "no-stall" performance are the result of Hydraulic Coupling Power Take-Off. The 90° swing cycle used on this job is fast. Two travel speeds in both directions. Crawler steering and tread lock are air controlled. There is less down-time, less drag cable replacement because the "Cable Miser" fairlead feeds cable to the bucket through geared sheaves that turn the same direction and speed as cable travel. A 34" hoist sheave adds to hoist cable life. For facts about a real dirt-moving, profit-making Dragline, get the complete story from your Thew-Lorain Distributor.

Ask Your THEW-LORAIN Distributor to help you . . .

① Get full data on Lorains — from ⅜-yd. to 2-yd. shovel classes, cranes up to 45-ton capacity, crawler or rubber-tire mountings, 5 interchangeable front ends. Ask your Thew-Lorain Distributor for recommendations, prices and delivery data.

② See a Lorain in action! Ask your Distributor to show a Lorain nearby — at work on an actual job. Let your Thew-Lorain Distributor show you his special shop facilities and parts-in-stock.

THE THEW SHOVEL CO., LORAIN, OHIO

THEW LORAIN® 820

FOR BIG JOB PROFITS

FITTING ... IN EVERY WAY

IRVING GRATING

FITTING FOR EVERY JOB
Bridge Decking, Catch Basins,
Marine Use, Steps, Flooring

FITTING SHAPED TO SPECIFICATION
Around Pipes, Machines,
Pillars and other Odd Shapes

FITTING TYPES OF GRATING
Riveted "Duplex Reticuline"
Pressure-Locked, "X-Bar"
Welded "Gripweld"

For Further Information on
Irving Gratings, Write

IRVING SUBWAY
GRATING CO., INC.
ESTABLISHED 1902

OFFICES and PLANTS at
5063 27th St., Long Island City 1, N. Y.
1863 10th St., Oakland 20, California

READER COMMENT

With regard to the proposed consolidation of all federal public works agencies, there is danger of creating a monopoly of a different sort. As it is, if an engineer believes that the agency he is working for has become corrupt and inefficient, he can resign and get a job with another. This would not be possible if there were only one federal works agency.

Let us hope that Admiral Moreell and his co-workers will eschew the emotionally-conditioned approach to their problems and consider all of the ramifications impartially and thoroughly.

Chesley J. Posey
Professor and Head,
Department of
Civil Engineering
University of Iowa
Iowa City, Ia.

CALENDAR

Associated Equipment Distributors, Waldorf Astoria Hotel, N. Y. City, Jan. 31-Feb. 4.

Association of Asphalt Paving Technologists, Kentucky Hotel, Louisville, Ky., Feb. 1-3.

Street and Highway Conference, University of California, Los Angeles, Feb. 3-5.

Ohio Water Clinic Conference, Ohio State University, Columbus, Feb. 11-12.

National Ready-Mixed Concrete Association and the National Sand & Gravel Association, Conrad Hilton Hotel, Chicago, Feb. 15-19.

American Society of Civil Engineers, Hotel Biltmore, Atlanta, Ga., Feb. 15-19.

N. J. section American Water Works Association, winter meeting, Essex House, Newark, N. J., Feb. 16.

Northwest conference on road building, University of Washington, Seattle, Feb. 17-19.

National Society of Professional Engineers, Hilton Hotel, Albuquerque, N. M., Feb. 19-20.

National Crushed Stone Association, Conrad Hilton Hotel, Chicago, Feb. 22-24.

Highway Engineering Conference, University of Colorado, Boulder, Feb. 25-26.

American Concrete Institute, Golden Anniversary Convention, Shirley-Savoy Hotel, Denver, Colo., Feb. 22-25.

American Concrete Pipe Association annual convention, Fairmont Hotel, San Francisco, Calif., Feb. 25-27.

Associated General Contractors of America, Hotel Statler, Los Angeles, Calif., March 1-4.

Illinois Highway Engineering Conference, University of Illinois, Urbana, March 2-4.

N. Y. State Association of Highway Engineers, Arlington Hotel, Binghampton, N. Y., March 3-5.

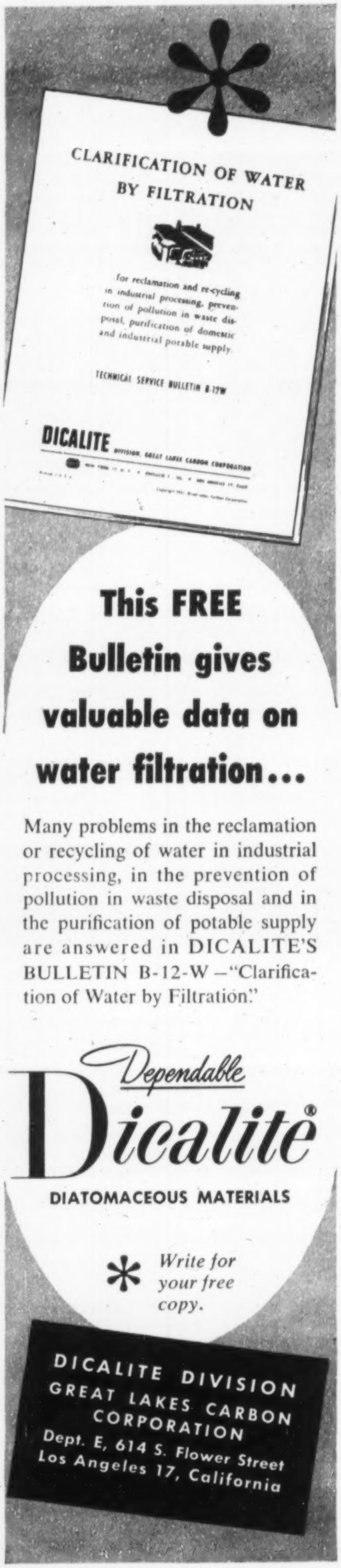
Association of Highway Officials of the North Atlantic States, Hotel Shoreham, Washington, D. C., March 10-12.

American Railway Engineering Association, Palmer House, Chicago, March 16-18.

Southern Municipal and Industrial Wastes Conference, N. C., State College, Raleigh, N. C., March 18-19.

American Congress on Surveying and Mapping, annual meeting and exhibit, Hotel Shoreham, Washington, D. C., March 22-24.

Southeastern section AWWA, Poinsett Hotel, Greenville, S. C., March 29-31.



CLARIFICATION OF WATER
BY FILTRATION

for reclamation and re-cycling in industrial processing, prevention of pollution in waste disposal, purification of domestic and industrial potable supply.

TECHNICAL SERVICE BULLETIN B-12W

DICALITE DIVISION, GREAT LAKES CARBON CORPORATION

This FREE
Bulletin gives
valuable data on
water filtration...

Many problems in the reclamation or recycling of water in industrial processing, in the prevention of pollution in waste disposal and in the purification of potable supply are answered in DICALITE'S BULLETIN B-12-W—"Clarification of Water by Filtration."

Dependable
Dicalite®
DIATOMACEOUS MATERIALS

* *Write for your free copy.*

DICALITE DIVISION
GREAT LAKES CARBON
CORPORATION
Dept. E, 614 S. Flower Street
Los Angeles 17, California

GM DIESEL
CASE HISTORY No. 639-51

USER: Geo. M. Brewster & Son, Inc., Bogota, N. J.

INSTALLATION: Four GM Diesel-powered Ingersoll-Rand Gyro-Flo 600 compressors supplying air for 9 I-R 71 wagon drills.

PERFORMANCE: "Completely satisfactory," says operator Tom Malone. Units shown were delivering air to the tools through 1200 to 1600 feet of line--maintaining steady pressure of 100 to 110 psi.

It pays to STANDARDIZE on

GM
GENERAL MOTORS
DIESEL
POWER

2400 CUBIC FEET OF AIR PER MINUTE ON NEW YORK THRUWAY ROCK CUT

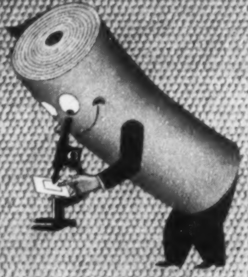
Geo. M. Brewster & Son now operate a total of 18 General Motors Diesel-powered Gyro-Flo compressors, including this battery of four capable of supplying 2400 cubic feet of air per minute for rock drills on a section of the New York Thruway, near Kingston.

These modern rotary compressors take full advantage of GM Diesel's smoother-running 2-cycle operation to maintain a steady flow of nonpulsating air at 100 psi or better. And compactness of the GM 2-cycle design makes these units smaller and lighter for quick, easy movement from job to job.

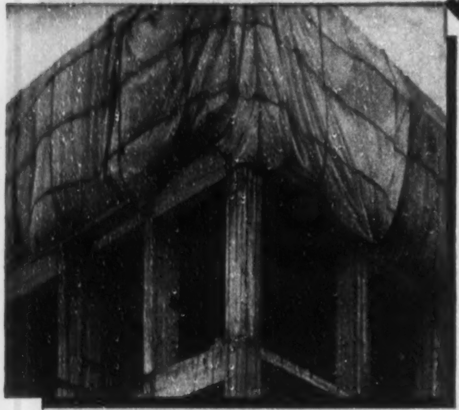
This inherent engine design superiority—plus interchangeability of lower-cost parts, readily available through a world-wide GM Diesel service organization—explains why GM Diesel power is a favorite of contractors on so many jobs. Next time you order equipment, it will pay you to specify GM Diesel. Available as original or replacement power in more than 750 different models of equipment. Write us for complete list.

DETROIT DIESEL ENGINE DIVISION
GENERAL MOTORS • DETROIT 28, MICHIGAN
Single Engines . . . 16 to 275 H.P.   Multiple Units . . . Up to 840 H.P.

Fabric
UNIFORMITY
Makes The Big
Difference
In
TARPAULINS



MT. VERNON
EXTRA
GIVES YOU
GREATER
FABRIC
UNIFORMITY



One of a series of comprehensive laboratory controls throughout production to assure uniformity in all Mt. Vernon-Woodberry products. Here fabric thickness after weaving is being gauged.

Mt. Vernon-Woodberry Mills

TURNER HALSEY
COMPANY
Selling Agents
40 WORTH ST. NEW YORK

Branch Offices: Chicago • Atlanta • Baltimore • Boston • Los Angeles

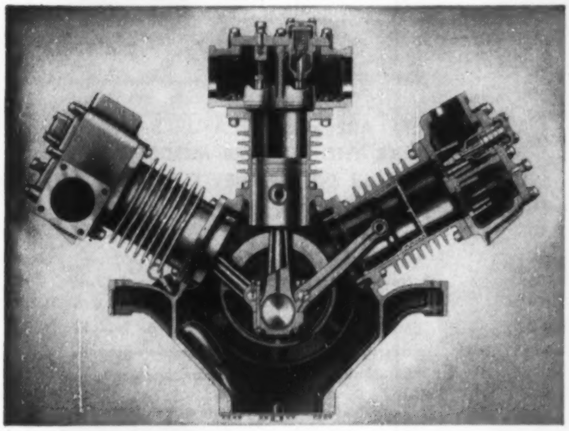
If you believe

ALL COMPRESSORS ARE ALIKE...

SIZE	COMP. H.P.	ENGINE H.P.	H.P. RESERVE	% RESERVE
600	134	202	68	33.7
315	75	117	42	35.6
210	51	78.5	27.5	35
160	37	57	20	35
105	25	42.5	17.5	41.6

check these three points

1. RESERVE POWER. There's plenty of that built into every Blue Brute. That means it takes thousands of hours of normal operation before engine wear affects the compressor's output.



2. EASY MAINTENANCE. All parts of the Blue Brutes are readily accessible. No special tools or complicated disassembly procedures are needed. And the compressor uses the same oil as the engine.

[illegible]	ENGINE TYPE	[illegible]	[illegible]
60'	GASOLINE	1.31	1.42
105'	GASOLINE DIESEL	2.16 1.66	2.35 1.73
160'	GASOLINE DIESEL	3.18 2.45	3.44 2.60
210'	GASOLINE DIESEL	4.32 2.89	4.70 3.06
315'	GASOLINE DIESEL	6.25 4.38	6.75 4.64
600'	DIESEL	6.30	9.20

3. FUEL ECONOMY. How does your compressor stack up in comparison with the Blue Brute for economical fuel consumption? The figures shown have been determined under normal field operating conditions.

Get all the facts about the Blue Brute from your nearest Worthington distributor. Or write to Worthington Corporation, Construction Equipment Division, Section H.3.6, Plainfield, New Jersey.

WORTHINGTON

H.3.6

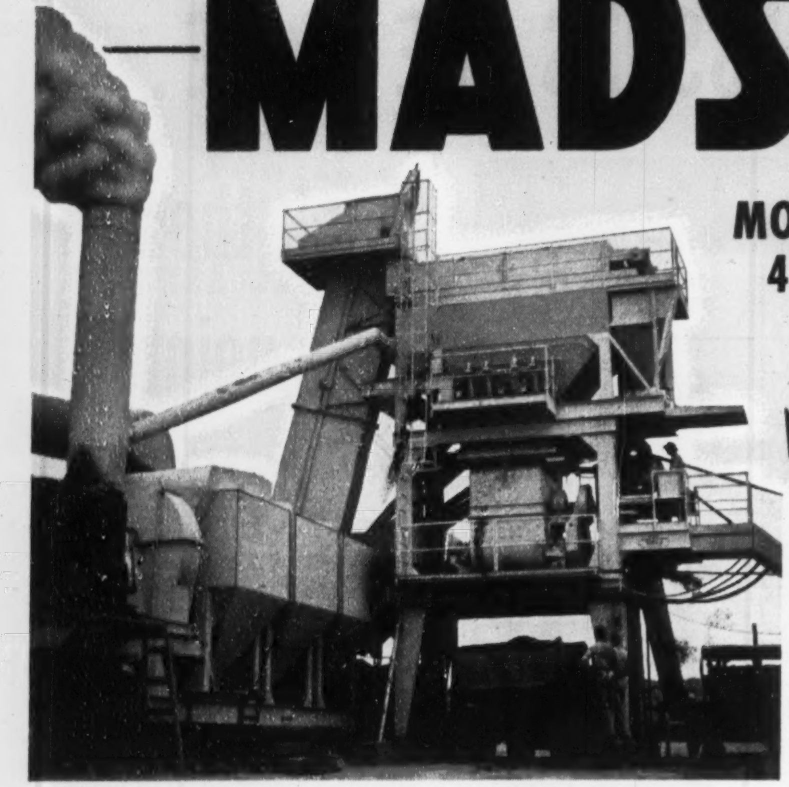
IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB

ROCK DRILLS • WAGON DRILLS • PAVERS • CONCRETE MIXERS • PORTABLE PUMPS

MADSEN

MODEL 481

HELPING TO BUILD THE HIGHWAYS OF THE WORLD
MADSEN
Since 1910



How do you figure the money-making potential of an ASPHALT PLANT?

When you look at an asphalt plant, look at it from the standpoint of how much it will earn for you this year, next year, as well as many years to come. Here are some things to consider: portability, first cost in relationship to production capacity, accessibility, and maintenance costs.

Take the MADSEN Model 481! It has more money-making features than can be found in any other plant of its type. It is designed for the ultimate in portability. The unitized sections are easy to erect and dismantle. Bin gates, weigh-box, mixer, and asphalt injection control valve are air-cylinder controlled. This means a faster mixing cycle resulting in greater daily production. The roll-away weigh-box means easy access to the mixer. Adequate service platforms, stairways and ladderways provide for more convenient and safer servicing. Think about these features . . . they are worth money to you. Consider them when figuring the money-making potential of your next asphalt plant.

Now is the time to learn about MADSEN! Let us tell you the complete story about the new MADSEN 481 4000-lb. Batch Capacity Asphalt Plant.

Let's Clean-up America's Highways
America's highways are beautiful. Don't make them a dumping ground for cans, bottles and rubbish.
MADSEN ASPHALT PLANTS

Photo at top of page shows the MADSEN Model 481 4000-lb. Batch Type Asphalt Plant in full operation. It is equipped with combination direct diesel drive and diesel electric drive, utilizing a Caterpillar 156 KW generating unit. Complete set-up includes a MADSEN 380 Dust Collector unit and a MADSEN 84" x 30' Dryer.

HERE ARE SOME FEATURES THAT MAKE THE MADSEN MODEL 481 YOUR BIG MONEY-MAKING POTENTIAL IN ASPHALT PLANTS

- **New MADSEN Model 440 Twin-Shaft Pug Mill Mixer (Patent Pending) with improved mixing action, faster discharge, built-in oversize capacity and precision-ground, externally removable sectional liners.**
- **Exclusive bin design (Patent Pending) for more uniform withdrawal of aggregates.**
- **MADSEN Pressure Injection System (Patent No. 1987243) . . . the asphalt is pumped into the mill in 5 to 7 seconds!**
- **Mixer operator station on end of plant away from fumes and heat.**

WRITE for your copy of Bulletin No. 800 describing the MADSEN Model 481

MADSEN IRON WORKS, INC.
14100 E. ROSECRANS AVENUE, P. O. BOX 38 LA MIRADA, CALIFORNIA

MADSEN
Equipment that Serves ®

JANUARY 28, 1954

Vol. 152, No. 4

NATIONAL AFFAIRS

Federal construction funds trimmed 21
More house, same price in '54 23
President's housing message 24
Florida turnpike: Engineers changed again on 110-mi. toll project 26
Plattsburg air base contracts awarded 26
New York group hears clean streams progress 26
W. Va. turnpike needs additional $37 million 26
Kansas River Basin: Flood control solution is being sought both in Washington and locally 27
Seek private financing for $85-million Texas dam project 27
Route picked for northeast extension of Pennsylvania Turnpike 27

LABOR

N. Y. builders seek 100% labor peace 28
St. Louis business agent draws 12-year sentence ... 28
Everybody works as 1923 work assignment ruling is dusted off 28

FEATURES

U. S. and Maryland divide a parkway job 30
Bidding for engineering services 42
Prestress both tilt-upwalls and precast beams 48

INTERNATIONAL

Moving a mountain from Venezuela to the U. S. ... 52
Canadian project to irrigate 240,000 acres in Alberta 55

MUNICIPAL

New Orleans eliminates 144 grade crossings—five rail stations replaced by one 57
Michigan authority finally wins—is building incinerator 62
New schools urged: Study shows school needs still rise 67
Wisconsin redevelopment law legal? 68

MEN AND JOBS

Canadian Bechtel elects Sidney Blair president 71

BUSINESS AND FINANCE

Equipment loans: good business for banks 99
GM throws $1 billion into the pot 100
Materials prices were stable in December, reports BLS 102
Activity this week 103
Chicago gets most industrial awards in postwar period, Texas tops states 104
Industrial property prices will be stable, NAREB says 105

NEW PRODUCTS

A new pair of tripods use their heads 117
New diesel weighs only 19 lb per hp 119
Lightweight safety glasses—the ounce of prevention 120
Area, volume calculator works like a slide rule 122
Gravity locking assures safer scaffold assembly 122
New rubber paving compound now in quantity production 123
Capacity and dependability increased in new well-points 123
Aluminum alloy saves both weight and money 126

Reader Comment 6
Calendar 12
Washington Observer .. 19
Engineering News-Pictures 29
Weather 38
Obituaries 74
Books 80
Construction Reports .. 97
Unit prices 105
Editorials 128

THE CONSTRUCTION WEEK

DEDUCTION—There's been a slight relaxation of a tight Internal Revenue Bureau rule that will be of particular interest to construction:

IRB held recently that cost of daily transportation to a construction job where workers are temporarily employed is deductible—and company reimbursements are not subject to withholding tax.

You can have your tax man look it up in Revenue Ruling 190, IRB 1953-19.

AXLE TROUBLE—Ohio's attempt to collect an axle-mile tax on interstate trucks—already the cause of threats of abrogation of agreements with other states—drove headlong into further trouble.

Attorneys representing 31 Ohio trucking companies and five in other states began action in federal court at Columbus, challenging the legality of the tax on the ground that it interferes with interstate commerce. And truck-owning drivers were threatening a strike late this month, over whether they, or the larger companies to whom they rent their services and machines, should pay the tax.

The state wants to collect a tax ranging from ½-cent a mile (for three axles) to 2.5 cents a mile (for four or more axles). So far, the state has collected $416,237—most of it paid under protest.

BIG BUSINESS, BIG DEBT—Another measure of the size of the market that the nation's homebuilders are dealing with (see also p. 23) is this one:

U. S. home owners (of one- to four-family, non-farm residences) now owe in excess of $65 billion on their residences.

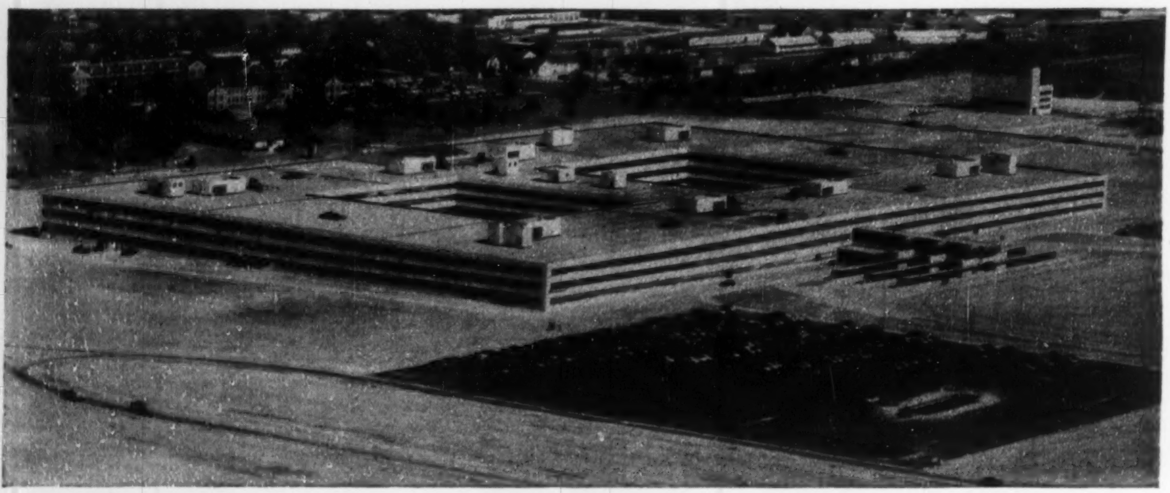
Although that figure represents a rise of $6.8 billion in the last year, it causes no alarm to the National Savings and Loan League. Said league president Clifford P. Allen: "Home financing institutions are generally hopeful that the home loan total will expand even more, dollarwise, during 1954."

CANADIAN ALUMINUM—There's plenty of interest on both sides of the border in the report due in February on surveys of British Columbia's Atlin Lake-Yukon River basin as site for a mammoth hydro-electric-metallurgical development.

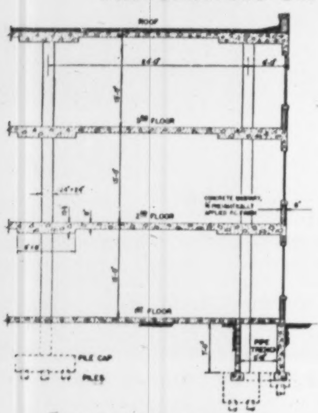
If surveys (by Quebec Metallurgical Industries, Frobisher Ltd. and Ventures Ltd.) are favorable—and government permission forthcoming—the development would be on the order of $1 billion—with a hydro development alone capable of producing 4,500,000 hp.

Note for U. S. capital: Although B. C. Prime Minister W. A. C. Bennett said recently his government had no prejudices as to whose capital develops the area, Canadian Resources Minister Jean Lesage reiterated his government's stand against export of power.

HOME OF THE **Army Dollar**



Economy-Minded Army Planning Cuts Cost by $4-Million on 14-Acre, All-Concrete Structure, with 1¼-Million sq. ft. of Usable Floor Space

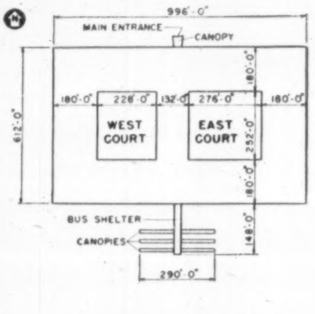

ROOF
3RD FLOOR
2ND FLOOR
1ST FLOOR
PIPE TRENCH
PILE CAP
PILES

SECTION THRU TYPICAL EXTERIOR BAY

● New Finance Center at Fort Benjamin Harrison, near Indianapolis, second largest all-concrete administrative structure in the world, dwarfed only by the Pentagon, now houses Army Finance Operations, formerly scattered throughout the U. S.

Utilizing streamlined concreting methods, the 3-story, flat-slab, reinforced-concrete structure, with 1¼-million sq. ft. of usable floor space, was completed ahead of schedule, in spite of strikes, cyclone and blizzard. A total of 83,000 cu. yds. of concrete, pumped to all points within the 14-acre building area, was placed at a yard-a-minute pace.

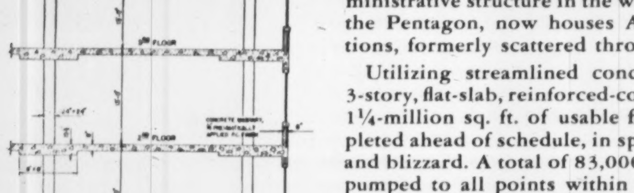
Here is functional design, enduringly expressed in concrete, for utmost stability, durability, firesafety and lowest annual cost — completed for $4-million less than original $23-million estimate — quality concrete, every yard of it, produced with over 100,000 barrels of Lone Star Cement.


996'-0"
MAIN ENTRANCE
CANOPY
180'-0"
228'-0"
132'-0"
276'-0"
180'-0"
WEST COURT
EAST COURT
612'-0"
180'-0"
252'-0"
180'-0"
BUS SHELTER
CANOPIES
148'-0"
290'-0"

PLAN VIEW

FINANCE CENTER, U. S. ARMY:
Fort Benjamin Harrison, Indianapolis
E. J. BEAN, Brig. Gen., U.S.A., Commanding
Supervision: **U. S. ARMY CORPS OF ENGINEERS**, Chicago
Architects-Engineers: **HARLEY, ELLINGTON & DAY**, Inc., Detroit
Ready-Mix Lone Star Concrete—Joint Venture:
READY MIXED CONCRETE CORP. • **HESTON CONCRETE CO.**
CARLSEN CONCRETE SUPPLY, all of Indianapolis
Masonry Units: **SPICKELMIER COMPANY**, Indianapolis

General Contractors—Joint Venture:
SHERRY-RICHARDS CO., Chicago
C. E. YOUNGDAHL & CO., Inc., Long Island City, N. Y.
CORBETTA CONSTRUCTION CO., New York
JAMES McHUGH CONSTRUCTION CO., Chicago
Contractor for Water Supply, Sewers, Railroad Siding:
CALUMET PAVING COMPANY, Zionsville, Indiana
Piling: **CASEY & CASE**, Detroit


LONE STAR PORTLAND CEMENT
INCOR
LONE STAR Air-Entraining PORTLAND CEMENT
LONE STAR Masonry CEMENT

LONE STAR CEMENTS COVER
THE ENTIRE CONSTRUCTION FIELD

LONE STAR CEMENT CORPORATION

Offices: ABILENE, TEX. • ALBANY, N. Y. • BETHLEHEM, PA. • BIRMINGHAM
BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS
KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK
PHILADELPHIA • RICHMOND • ST. LOUIS • WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 18 MODERN MILLS, 136,000,000 SACKS ANNUAL CAPACITY

WASHINGTON OBSERVER

The total impact of Eisenhower's program on construction can now be checked. The Administration's program is a large one, and it hits construction all across the board. Here's a rundown on proposals you will want to keep an eye on:

Taxes will be one of the hottest issues. The tax revision bill in the House Ways and Means Committee probably will go through in good shape. It provides for faster amortization of machinery and buildings, permits writeoff of two-thirds, instead of only half of the cost in half the useful life. There's a boost for housing in this, too: The provision would apply to investors building rental homes and apartments. This faster amortization will apply to all money spent on capital equipment—including buildings—after Jan. 1 this year.

Tax break for small businesses like subcontractors is also in the program, and probably will go through. But big fight will come on holding the corporate income rate at present level of 52%; the present law says tax comes down to 47% beginning April 1.

There's construction business in the farm program. With Congress expected to vote billions to boost the government's buying, there's already a shortage of storage space for the present large holdings of food and fiber.

•

Odds still are against any labor legislation. Certainly the Administration's plan for government-run strike votes doesn't stand a chance.

New government aid for hospital, nursing, and convalescent homes seems a sure thing. The Republicans are under heavy political pressure to come up with a non-socialist health program.

Military construction, flood control, rivers and harbors—all these programs are in for big money, and new starts. They'll go through in about the size presented to Congress.

•

Congressional okay of the St. Lawrence Seaway is still touch and go. The big vote in favor by the Senate improved chances, of course. But House leaders are cool to authorizing the project. And it would be easy to block in the House. The House Public Works Committee will begin hearings soon, and prospects are it will okay. So the decision is up to Speaker Martin.

•

An end to racial segregation at the Norfolk and Charleston Navy Yards completes the Administration's integration drive in the armed services. Vice President Nixon, head of Eisenhower's compliance commission, says public facilities were opened up without serious repercussions.

Within a month, a new policy on contracts compliance will be put out advising contractors in more detail where discriminaton is forbidden; examples —in hiring, placement, training, upgrading, seniority, pay. The committee rides herd on government agencies that let contracts.

•

Air Force has won a round in its manpower battle with Army Engineers. Under pressure of a heavy manpower cut, Army has given Air Force control of the engineer troops who build and maintain air bases. General agreement has been reached to turn over to the air arm 40,000 engineer troops who previously had been furnished to the Air Force on assignment but remained under Army control. Ever since the Air Force was separated from the Army after World War II, it has battled to get its own group of engineers. Army, fearing establishment of a rival engineer corps, stoutly resisted the move.

JUNE 18, 1953

Contractor Earns $43,000 Bonus

with help of Ryerson re-bar service

Eighty-six days ahead of schedule, traffic again rolls along three of the busiest blocks of Chicago's Michigan Avenue—temporarily closed during construction of a huge underground garage. As a result, John Griffiths and Son Construction Co., the general contractor for the garage project, earned a bonus of $500 a day, and the dependability of Ryerson reinforcing service was again demonstrated.

Day after day during the summer and fall, fabricated Ryerson re-bars were faithfully delivered as needed; there was no waiting—but no time-consuming rehandling of piled-up shipments either. Ryerson deliveries kept pace with the job—a job that beat a tight schedule by 86 days!

You can depend on Ryerson reinforcing service, too, from setting plans to steel on the site. Your re-bars will be accurately cut and bent to your specifications—metal-tagged for positive identification. On your next job we suggest you call your nearby Ryerson plant for lump sum or average pound prices.

PRINCIPAL PRODUCTS

REINFORCING—Bars, wire fabric, spirals, etc.

STEEL FORMS—For concrete joist construction.

STRUCTURALS—Channels, angles, beams, etc.

PLATES—Many types including Inland Safety Plate.

BARS—Carbon and alloy, hot rolled and cold finished.

SHEETS—Hot and cold rolled, many types and coatings.

TUBING—Seamless and welded, mechanical and boiler tubes, structural tubing, etc.

STAINLESS—Allegheny sheets, plates, bars, tubes, pipe, pipe fittings, etc.

MACHINERY & TOOLS—for metal fabrication.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • PHILADELPHIA • CHARLOTTE, N. C. • BOSTON • CINCINNATI • CLEVELAND
DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

RYERSON STEEL

Federal construction funds trimmed

Public housing loans take biggest cut in budget; military and AEC work to hold at present levels

Federal outlays for construction in fiscal 1955 would drop about 10% below the current year, under the budget submitted last week by President Eisenhower. His message projected federal disbursements for construction next year of about $5.9 billion, as compared with nearly $6.5 billion this year.

Most of the budgeted reduction for fiscal 1955 comes out of civil works. The biggest single drop—amounting to nearly $300 million—is in the estimate for loans to local public housing authorities (see page 24). In all, cuts in civil construction expenditures account for nearly $500 million of the overall saving.

• **Military work not hit**—Proposed construction spending for military public works and atomic energy facilities holds close to 1954 levels. The projected total for defense construction is nearly $2.9 billion, only $75 million less than estimated for the year ending June 30.

The figure for general government civil works for fiscal 1955 is $3 billion.

In addition to $105 million for the St. Lawrence Seaway, the President recommended the starting of 22 water projects and the resumption of four others that have been suspended. These projects are small to intermediate in size, requiring one to three years to complete. There is no power involved in any of the proposed projects. Total cost to complete the 26 jobs would be $184 million. Appropriations of $23 million are requested to get the jobs going in fiscal 1955.

• **Pump primer?**—Construction recommendations, the President pointed out, are based on a policy that public works spending should be held down while national income and employment remain high.

Thus, requested appropriations for Army Engineer civil functions would include only $21 million for starting work on 20 projects (16 new and four resumed). But, with continuing jobs included, the appropriation requests climb to: $207 million for 16 multiple-purpose projects; $61 million for nine flood-control reservoirs; $37 million for 40 local flood protection jobs; $21 million for 16 navigation channels or harbors, and $16 million for five lock and dam projects.

Similarly, the Reclamation Bureau appropriation schedule includes only $2 million for starting six small new jobs out of a total construction request of $122 million for some 35 to 40 separate projects.

Should business turn down drastically, the government wants to be able to use public works to offset a decline in private construction. The President proposed two steps toward building up a reserve of public works plans for an emergency: (1) put $10 million into advance planning of local public works and (2) step up the planning of additional federal projects.

• **Backlog is solid**—On the federal advance planning schedule, construction agencies by June 30 will have $1.2 billion worth of projects ready for advertising when needed and another $3.5 billion in various degrees of preparation. During the twelve months of fiscal 1955, the agencies expect to build up the ready-for-bidding total to $1.7 billion, while projects in process decline to $3.1 billion.

Water projects make up most of this planned reserve. Of the $1.7 billion to be ready by June 30, 1955, the

Budgeted for construction

Agency	1953 (Fiscal years. In millions) Actual	1954 Estimate	1955 Estimate
CIVIL WORKS			
Corps of Engineers	$561.4	$408.1	$373.1
Tennessee Valley Authority	212.4	250.9	291.7
Department of the Interior:			
Bureau of Reclamation	192.1	144.1	134.3
Bonneville Power Administration	53.4	50.2	42.5
Office of territories	34.0	33.5	40.2
Other Interior	34.4	42.0	35.9
Bureau of Public Roads	538.1	580.0	570.5
HHFA: loans, low-rent public housing (gross)	924.3	1,122.6	840.9
Department of Health, Education, and Welfare	209.6	181.4	126.2
Veterans Administration	98.5	72.4	58.2
Civil Aeronautics Administration	45.6	33.8	20.7
National Advisory Committee for Aeronautics	29.1	41.0	24.5
Department of Agriculture	14.3	49.2	25.3
Rural Electrification Administration loans (gross)	231.5	242.0	225.0
College housing loans (gross)	14.1	36.9	62.1
Grants for private nonprofit hospital constr	49.7	37.6	37.7
Other federal construction	162.5	195.2	118.3
Total, civil works	**3,405.0**	**3,520.9**	**3,027.1**
DEFENSE CONSTRUCTION			
Air force	941.0	1,012.0	1,109.0
Army	510.0	350.0	248.0
Navy	462.0	325.0	193.0
Proposed legislation	....	....	100.0
Atomic energy construction	1,054.0	1,257.0	1,213.0
General Services Adm.: storage facilities	19.0	14.0	20.0
Total, defense construction	**2,986.0**	**2,958.0**	**2,883.0**
Total, federal construction	**6,391.0**	**6,478.9**	**5,910.1**

Corps of Engineers will account for about $1 billion and the Reclamation Bureau for about $400 million.

Agencies report no lack of authorized projects to sustain advanced planning activity. Backlogs of authorized projects and programs eligible for planning run to these totals: Corps of Engineers, $4.9 billion; Reclamation, $3 billion; Tennessee Valley Authority, $1.2 billion; Forest Service, $800 million; Public Buildings Service, $500 million; other agencies, $1.5 billion.

Funds for advance planning in fiscal 1955 are estimated at $9.5 million. For preliminary surveys and investigations of river-basin and other construction programs, the budget allotments total $15.4 million. And to the collection of basic data—mapping, geology, soil study, climate and hydrology—the budget recommends $39 million.

Budget estimates of construction spending for transportation in fiscal 1955 total $700 million. Nearly $550 million of this amount will go to federal-aid highways, an increase over the current year. But construction expenditures for civil airports will decline from about $20 million to less than $8 million. The President requests no additional federal aid for local airports.

• VA hospitals down, but others up—Expenditures for veterans hospitals will likewise decline in 1955, as the program nears completion. But Eisenhower asks a broadening of the present federal grant-in-aid program for local hospital construction to stimulate building of other health facilities—diagnostic and treatment centers, nursing homes, chronic disease hospitals.

For this proposed expansion of hospital grants, the budget asks $33.5 million of new construction money in fiscal 1955. Actual expenditures out of that sum in the first year would be less than $3 million for the entire hospital aid program. Construction spending in fiscal 1955 is estimated at almost $48 million, a slight increase over 1954.

To assist construction of schools in federally affected areas, Eisenhower asked $40 million more in the new budget. With the $70 million voted last year, that sum will take care of the most urgent needs. Construction expenditures under the school program are expected to drop to $72 million in 1955 from $120 million in 1954.

Military construction expenditures of $1.65 billion in fiscal 1955 include $100 million from the new appropriation of $1.1 billion requested in the President's budget (ENR Jan. 21, p. 21). The remainder will be financed from carryover funds.

New water projects and resumptions

	Total	
Project	**Estimated cost**	**Recommended for 1955**
CORPS OF ENGINEERS		
Local flood protection projects		
Kawainui Swamp, Hawaii	$911,900	$500,000
Beardstown, Ill.	3,898,500	400,000
Barbourville, Ky.	2,190,000	350,000
Anacostia River, Md.	8,063,800	1,000,000
Adams, Mass.	5,406,000	560,000
Batavia, N. Y.	793,000	300,000
Johnsonburg, Pa.	598,000	300,000
Little Missouri River below Murfreesboro, Ark.	530,000	492,000
Total, 8 projects	**22,391,200**	**3,902,000**
Navigation projects		
Warrior lock and dam, Ala.	19,629,000	2,000,000
Red Wood City harbor, Calif.	1,045,600	1,000,000
Housatonic River, Conn.	1,115,000	500,000
Portland harbor, Me.	1,475,000	675,000
Duluth-Superior harbor, Minn. and Wis.	625,000	300,000
Fairfield, N. C.	195,000	195,000
Missouri River, Omaha to Sioux City (Decatur bridge reach)	11,000,000	2,000,000
Green River locks and dams, Ky. (to be started in 1954 with supplemental appropriation of $800,000)	14,399,000	5,400,000
Total, 8 projects	**49,483,600**	**12,070,000**
Resumptions		
Coralville reservoir, Iowa (flood control)	12,634,400†	2,300,000
Dillon reservoir, Ohio (flood control)	17,871,200‡	2,000,000
Calumet harbor and river, Ill. and Ind. (navig.)	110,000	110,000
Port Aransas—Corpus Christi, Tex. (navig.)	2,284,600	500,000
Total, 4 resumptions	**32,900,200**	**4,910,000**
BUREAU OF RECLAMATION		
Irrigation and water supply projects		
Middle Rio Grande, N. M.	$28,848,759	$721 000
Alamogordo Dam spillway enlargement, Carlsbad, N. M.	1,471,000	300,000
Yuma auxiliary, Ariz.	476,000	100,000
Minidoka North Side Pumping Division, Unit A, Idaho (new unit of going project)	2,483,200	600,000
Santa Maria, Calif. (proposed legislation)	16,982,000	175,000
Washita, Okla. (proposed legislation)	29,197,000	325,000
Total, 6 projects	**79,457,959**	**2,221,000**
Total, 22 projects and 4 resumptions	**184,232,959**	**23,103,000**
St. Lawrence Seaway (proposed legislation)	**105,000,000**	**105,000,000**

† Excludes $5,633,600 previously spent.
‡ Excludes $9,189,800 previously spent.

• Five AEC projects continue—Construction spending of the Atomic Energy Commission in 1955 will be chiefly for continuing work on five projects of the big expansion program—at Portsmouth, Ohio; Hanford, Wash.; Oak Ridge, Tenn.; Paducah, Ky.; and the Savannah River site in South Carolina. New projects proposed for 1955 total considerably less than in 1954; they include uranium ore processing plants, some weapons plant additions and research units.

In the Tennessee Valley area, the President pointed out, the AEC will make arrangements to obtain power from other sources than TVA, thus releasing TVA power to take care of needs in the territory served without building additional steam plants.

More house, same price in '54

Homebuilders see million units for year, but harder work to sell them—Convention showing is impressive

E. E. Halmos, Jr.
Managing Editor

J. R. Carr
Associate Editor

There's going to be a lot more housing for the dollar spent in 1954 on the million or more housing units to be put up this year.

That's how the one-third of the U. S. construction industry engaged in home building sizes up its job this year. Builders at Chicago last week for the 10th annual meeting of the National Association of Home Builders were convinced of one thing.

They are facing a period of really "hard sell"—a buyers' market—such as hasn't existed since the end of World War II.

It's not easy to assess a convention as large and unwieldly as this biggest of the Home Builders' shows: scattered over four floors and the basement of one huge Chicago hotel, and over two floors of another; attracting an attendance variously estimated at between 10,000 and 18,000 builders; more than 800 exhibitors.

But the many industry speakers, the exhibitors, the "man at the convention" put it in about these terms, looking at their industry for 1954:

1. Prices—in dollars—won't be down any from last year, may even go up a little in some classes.

2. But within the price, a buyer is going to be offered values and added features he hasn't seen in a ready-built house since before World War II: air conditioning on a much larger scale; new heating devices; more and more efficient kitchens; better designed and engineered structures; better site planning. (There were 49 exhibitors of air conditioning equipment alone.)

3. In line with such improvements, the builders are working hard to improve their own techniques—borrowing heavily from their heavy-construction cousins; improvising on their own methods, listening eagerly to experts and material manufacturers—to permit them to shave their costs to keep their prices within what they consider the market will take.

4. And the prefabricated home manufacturers (eight were exhibiting at the show) are making an increasingly strong bid for a substantial share of the housing market—with improved techniques, inpeccable design, many variations, attractive exteriors.

5. Financing is the key to 1954 health of the business—and the builders are determined to get some answers on that, even if they must set up the financing machinery themselves.

• Big business—But perhaps the greatest significance of this meeting—for the construction industry as a whole—is the very definite emergence of homebuilding as big business.

The very size of their meeting made it very clear that these builders no longer consider themselves as second-cousins to the construction industry.

They are very conscious of the fact that their total business last year—something in the neighborhood (said their leaders) of $11 billion—is a good one-third of the total volume of the entire construction industry. The extent to which manufacturers are willing to go to woo their attention—and to help them solve their problems—is further evidence.

• Point of interest—The assembled homebuilders listened respectfully—and attentively—to a long list of distinguished speakers (Senator John J. Sparkman of Alabama; G. C. Johnson, vice-president of the Dime Savings Bank in Brooklyn, N. Y.; Congressman Jesse Wolcott of Michigan; their own retiring president, Emmanuel Spiegel; their newly elected president, R. G. Hughes of Pampa, Tex. But their real interest lay in two other places: the sprawling exhibit halls and the numerous clinics and special sessions on particular business and technique problems.

Throughout the five-day meeting the exhibits were crowded by the builders, and the tenor of their questions and comments had to do with their principal problem—selling the houses they build.

And it wasn't gimmicks and gadgets that they were seeking—for the most part it was solid construction work. They studied the advantages, costs, sales-appeal of heating plants; new materials for doors and windows; insulation; various types of piping and duct work; interior decoration; mortar and masonry sealers; sliding and folding doors; new ideas for closet space, and for flooring. Of course the parts of the house the builder doesn't build —but which help sell the house—such as refrigerators, washers and dryers, garbage disposal units, sinks, bathtubs, tile, and exhaust fans, came in for careful attention.

• Lots to see—This interest in new building products and a healthy competition, market-wise, spurred the manufacturers to more intensive displays of their products. Just a few examples: there were 58 exhibits showing the latest innovations in doors and door frames; 44 showing windows and window frames; 49 exhibits of heating, ventilating and air-conditioning; 38 displays of kitchen cabinets and equipment; 36 impressive displays of building materials.

The average conventioneer's reaction to the huge array of new products might be summed up in the words of a building materials company executive from Botineau, N. D. Said he: "The technical sessions are inspiring

COMMAND CHANGE—R. H. Hughes (left) of Pampa, Texas, is new NAHB president. Emmanuel Spiegel, retiring president, congratulates him.

and informative, but what I've seen and learned in the exhibit halls has been richly rewarding."

Notable also was a bow to the growing trend among homeowners making their own repairs. Many of the products advertised are said to be easily installed by the owner—and many a builder was considering that factor in his plans, figuring an added sales value in the assurance to the buyer that the house was so planned that the owner conveniently and easily could do his own improvements as need or desire arises.

The clinics were devoted to problems of construction—adavntages of bolted trusses over nailed, for example—quick ways to pour concrete, proper use of labor, power tools. And, one two-day clinic was entirely devoted to purely sales methods.

• **"Do it yourself"**—The fast growing "do-it-yourself" movement in the home building industry was portrayed dramatically in a number of "on-stage" demonstrations. One afternoon session showed full-scale operations on how to pour foundations, tilt-up walls, construct timber roof trusses and install storage walls. And another full session was given over to practical demonstrations on how to use dry wall construction and finishing materials; to apply asbestos shingles, ceramic tile and insulating board siding; to install kitchen cabinets; and to use copper tubing for water supply and drainage construction around the home.

• **The financing**—Inevitably, despite the accent on ways and means of selling, the key point that bothered most of the builders was financing—especially that available to the prospective purchaser.

Most of them were looking hopefully at the national administration's plans on this subject—their hope being that the government would permit even lower down payments for nonveterans, longer terms on mortgages obtained; "open-end" mortgages that would permit addition of further debt after some part of the original mortgage had been paid off.

Many had been doing careful checking into the widely publicized NAHB (and FHA) plan for "trade-ins." Some few had tried it, and thought it worked well. But most were afraid that such a "trade-in" operation required the builder to get into still another business—finance—and believed that their own resources couldn't stand the risk proposed.

(One San Diego builder told ENR that his firm had gone into the trade-in market two months ago—by forming its own finance company—and in two months had handled 24 transactions, and resold all but one of the 24 houses.)

But most of the NAHB members were pinning their hopes on action by the U. S. government. They are of the opinion that there's no great risk involved—that many a family can afford to carry a new house, if it can only get the property into its hands without a large initial cash requirement.

• **Where from?**—The builders were looking seriously at the trade-in market, though, as a source of their biggest future business: the family that bought a smaller house, and has now outgrown it; the family whose income now warrants or seems to indicate a more modern home.

And they are doing what they can to foster this market—to break down the traditional reluctance to "trade in" a home (as is done with an automobile) when newer models make it seem outmoded.

Their advertising and sales emphasis is going to be on the accent on modernity, on greater utility, on better design for easy and comfortable living—all aimed at a turnover in their market.

With this in view, they accepted whole-heartedly Senator Sparkman's dictum that there is no end to the demand for new housing—both apartment and individual homes—as long as financing can be made attractive, and the builders can keep improving their product.

President backs home building aids

Message to Congress offers new incentives to cities for bolder attack on problems of neighborhood decay

President Eisenhower this week laid out a double-barreled housing program that aims for "a high level of housing construction and vigorous community development."

His proposals to Congress would support this high volume principally by liberalizing federal credit terms for private homes, both new and old. Construction would benefit, too, from his recommendations for community improvement. Those suggestions would widen the government's attack on urban decay and would set up special incentives for private building of homes for low-income families, while at the same time continuing the public housing program on a moderate basis.

Legislation embodying the President's proposals is expected to be introduced into the House and Senate within a few days. On much of Eisenhower's housing program, Congress will be ready to agree—especially on liberalized mortgage terms and increased aid for fighting blight. But on proposals to go ahead with public housing and to convert the Federal National Mortgage Assn. (Fannie Mae) into a corporation that would one day be privately owned though government-dominated, Congress is likely to engage in long and bitter debate.

• **More liberal financing**—Except for this compromise proposal on Fannie Mae, the President's recommendations follow pretty generally the suggestions of his housing advisory committee (ENR Dec. 17, 1953, p. 22). Broadest in their effect on the financing of housing are three proposals:

(1) To give the President authority to adjust interest rates, down payments and maturities for all government-insured and guaranteed mortgages;

(2) To raise the ceilings for maximum mortgage loans, and

(3) To give to older houses the same maximum terms as to new houses.

Existing houses, too, would be able to get larger insured loans for repair and modernization, at easier terms. He would increase the present loan limit of $2,500 to $3,000 and extend the terms from three years to five years. One omission in his "old homes" program was the Cole commission's recommendation for open-end mortgages for repairs and moderniaztion.

• **Would battle urban decay**—Eisenhower put his first emphasis on development and renewal of cities. He asked that the slum clearance program be broadened to provide loans and grants for renovation of areas worth saving, as well as for elimination of slums that cannot be salvaged. He said he would put to work the present available funds—$700 million for loans and $250 million for grants—and would ask for additional authorizations later as the program picked up speed.

This aid, however, would be contingent on community effort to prevent neighborhood decay and to improve run-down areas. That effort would involve, first, strict enforcement of housing and neighborhood standards, plus strict control of occupancy, and, second, a program of remaking areas that can be saved—based on broad replanning and on encouragement for the rebuilding of deteriorated structures.

To get the local slum-prevention planning job started, Eisenhower asked Congress for $5 million to be used in matching grants to states and metropolitan areas.

He also proposed to Congress, that it authorize FHA insurance of loans used to repair and renew homes in declining neighborhoods. But FHA would limit the insurance to areas where the local community had a workable renewal program under way. This special insurance plus the better loan terms for older houses in general, would open up a large rehabilitation market that might increase the annual volume of house repair and modernization work to $10 billion or more.

For the experiment in financing homes for low-income families, Eisenhower took a conservative approach. He spoke only of insuring loans of modest amounts, with low down payments, on both new and existing houses. He also would limit such housing to families displaced by other public activities related to housing.

• **Public housing at modest level**—Until such new approaches have proved successful, the President says the present public housing program should be continued at a reasonable level. He asks Congress to authorize a four-year program of 35,000 new units a year—15,000 more than Congress voted for fiscal 1954.

Eisenhower already had called for 35,000 public housing units in his budget message for fiscal 1955. The budget, however, shows an anticipated decline of almost $300 million in loan disbursements to local public housing authorities (see p. 21). This decline is a result of the reduction in the public housing program from former years.

Budget estimates for fiscal 1955 also show an expenditure of nearly $100 million for urban development and renewal, and another of almost $500 million by Fannie Mae.

• **New Fannie Mae urged**—Eisenhower's housing message proposes that Fannie Mae be reorganized and eventually become privately owned. The users would supply the capital funds and retire the government's initial investment.

Reorganized Fannie Mae would liquidate the government's present mortgage holdings of about $2.5 billion and give the Treasury the proceeds.

But more important, the President could authorize this new Fannie Mae to borrow from the Treasury to purchase FHA and VA loans whenever he thought such action necessary in the public interest. That would furnish support for Wherry Act, defense and disaster housing; it also could be extended to general support of the FHA-VA market within such dollar limits as Congress might establish.

Florida turnpike

Engineers changed again on 110-mi toll project

The second turnpike authority that the state of Florida has had in less than a year has engaged the New York engineering firm of Parsons, Brinckerhoff, Hall & Macdonald to provide overall supervision of engineering work on the 110-mi toll highway it has been authorized to build from Hollywood (just north of Miami) to Ft. Pierce. The original turnpike authority had been using three other firms for engineering work on this same project. They were Howard, Needles, Tammen & Bergendoff of New York; the Rader Engineering Co. of Miami; and Smith & Gillespie of Jacksonville.

In announcing the engagement of the Parsons firm; Marvin Adams, chairman of the authority, said that Florida engineering firms would be employed where possible to handle parts of the engineering work.

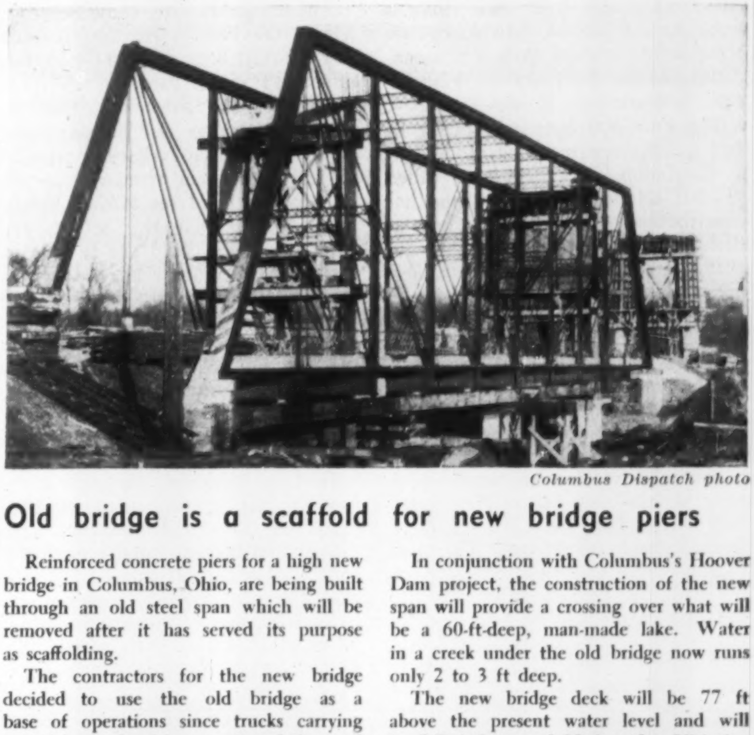
The Parsons firm, in 1952, completed a statewide study of toll road possibilities, reporting favorably on an east-coast toll highway from Miami to Jacksonville, and also on a cross-state toll-road (ENR Aug. 7, 1952, p. 29 and Aug. 21, p. 24). Its conclusions as to traffic potential were reviewed by Coverdale & Colpitts, New York, which firm favored the east-coast project.

Those reports were made to the Florida State Road Commission under the administration of former Governor Fuller Warren. Last June, after the legislature had authorized construction of the east-coast toll project from Miami as far north as Ft. Pierce, the governor, the late Dan McCarty, named the state's first turnpike authority.

It hired the group of engineers headed by the Needles firm. That group made a favorable engineering report on the proposed section between Hollywood and Ft. Pierce. A favorable traffic report on the same section was made by Coverdale & Colpitts.

However, before financing could be arranged, Governor McCarty died Sept. 28 and was succeeded by Charles E. Johns, president of the state senate, as acting governor.

It was Acting Governor Johns who in November dismissed the first turnpike authority for having wasted state funds through employment of a new set of engineers to review the earlier engineering study when, he said, the original study could have been updated at considerably less cost. Subsequently he appointed the present turnpike authority, which now has reengaged the Parsons firm.



Columbus Dispatch photo

Old bridge is a scaffold for new bridge piers

Reinforced concrete piers for a high new bridge in Columbus, Ohio, are being built through an old steel span which will be removed after it has served its purpose as scaffolding.

The contractors for the new bridge decided to use the old bridge as a base of operations since trucks carrying materials can be driven on it and the steel superstructure serves as a ready-built scaffold.

In conjunction with Columbus's Hoover Dam project, the construction of the new span will provide a crossing over what will be a 60-ft-deep, man-made lake. Water in a creek under the old bridge now runs only 2 to 3 ft deep.

The new bridge deck will be 77 ft above the present water level and will be 540 ft long and 29 ft wide. Visintine & Co., Columbus, Ohio, are contractors for the new span.

Plattsburg Air Base contracts awarded

Elaborate timetable and various bid combinations used in planning stage for construction of the installation

Award of contracts for the initiation of the Plattsburg, N. Y., Air Force Base last week brought to light a system of construction planning that is as detailed as that for a major military operation (ENR Oct. 15, 1953, p. 26).

Contracts awarded by the New York District, U. S. Corps of Engineers, were as follows: Airfield, C. H. Tompkins Co., J. A. Jones Const. Co. and D. W. Winkelman Co., Syracuse, N. Y., $9.1 million; fueling facilities, Fred Raff Co., Hartford, Conn., $1.1 million; buildings and utilities, T. C. Bateson Const. Co., Dallas, Tex., $8.7 million. Completions are scheduled for the summer of 1955.

The jobs attracted wide attention, almost 300 firms having taken out plans and specifications. These included subcontractors and suppliers, to be sure, but 29 contractors submitted bids Dec. 22. The option of bidding on all or part of the work, plus the presence of alternatives, made it possible for a contractor to submit as many as six price combinations in his bid. As a result, the usually simple job of bid analysis was a complex one. Army Engineers took more than a week to establish a satisfactory analysis before sending their recommendations to the Air Force in Washington.

But time had been provided. In fact it had been provided more than a year before—in a document called "Plan Plattsburg." Anticipating that construction of an all new airbase at the old New York National Guard post would call for a large share of his organization's efforts, Col. A. H. Davidson, district engineer, had "Plan Plattsburg" drawn up in mid-1952. This was when Air Force proposals for the new base were taking concrete form.

According to Col. Davidson, who compares his plan with that for a major military offensive, work scheduling as detailed as that in Plan Plattsburg is a novelty in Corps of Engineers stateside operations. The complexity of the Plattsburg contract setup made the plan desirable. It also has been a ready-made reference for anyone—Congress, Air Force, or Corps of Engineers personnel—who wants to know how soon to expect a certain construction step to be performed.

The plan is both a promise of performance and a means of keeping the promise. For the people who prepared it are the ones who are doing the work, and their work benefits by the discipline of written advance planning. In the spring of 1952 each functional unit in the New York District (design, construction, real estate, legal, etc.) wrote up an "annex" to Plan Plattsburg, detailing the unit's duties and stating the time requirements for accomplishing them. Headings in each annex were: purpose, assumptions, operations, responsibilities, action to be taken, directives or requests to be made, personnel requirements, and miscellaneous. The construction unit also prepared an organization chart for the resident engineering force, and a construction progress bar chart.

Next the general plan was assembled, on the basis of information extracted from the annexes. Heart of the general plan was a composite time schedule, set up on a "D-Day" and "D-Plus-X-Day" basis. D-Day was to be the date of receipt of the design directive for the project. Other key dates, which controlled overall progress, were the dates for receipt of a real estate directive and of a construction directive.

The design directive came Sept. 18, 1952. On Nov. 1 the first revision of Plan Plattsburg was published, this time with actual dates on the time schedule. The dates were firm for design procedures and for some real estate preparations. Because receipt of real estate and construction directives depended on further legislative and administrative action, the remaining dates could not be firm in the first revision. The directives came in the latter part of 1953, and a second revision of the plan was dated Nov. 10. It was in this revision that the time required for bid analysis was correctly anticipated. Moreover, the date of contract-award announcement, Jan. 22, adhered to the schedule.

In Col. Davidson's original directive for the establishment of Plan Plattsburg he stated that each staff unit should become familiar with the general plan and all annexes. Saying that the plan provides superior coordination among interested parties, he estimates that it has "saved 50% of lost motion because people know what is going on."

Facilities of the Plattsburg project will accommodate a medium bomb wing of the Air Force's Strategic Air Command.

New York group hears clean streams progress

New York State took its first legal action against a stream pollutor recently—a rock-washing industry spilling wastes without permissive state action. And as evidence of progress without enforcement, the state's Water Pollution Control Board now reviews 25% more plans for waste treatment works than it did prior to passage of the present state law in 1949.

A. F. Dappert made this report of progress to the New York Sewage and Industrial Wastes Assn. last week during its annual meeting in New York. As executive-secretary of the state agency, he reported that 1 in 4½ years under the 1949 state law 24 basins covering 20% of the state have been surveyed; waters of 10 basins have been classified.

L. L. Hedgepeth, of Bound Brook, N. J., told the association that the industrial waste problem can be prevented more easily than cured. The problem stems in many cases from a lack of the "intestinal fortitude" it might take to oppose pressures to locate new industries on already overworked streams, declared Mr. Hedgepeth.

A registration of 336 at the two-day meeting heard a program heavy in industrial waste discussions. Anthony J. Fischer, development engineer for the Dorr Co., received the Triennial Bedell Award for service to the Association. William Edwards assumed its presidency for 1954.

W. Va. Turnpike needs additional $37 million

About $37 million worth of bonds will be sold within the next two months to provide additional funds needed to complete the West Virginia Turnpike between Charleston and Princeton.

Costly excavation is cited by the turnpike commission as the major factor causing the toll road to exceed original cost estimates. (A previous $96-million bond issue was supposed to finance the 88-mi project.)

Meanwhile, Coverdale and Colpitts have revised their 1951 forecast of turnpike revenue that can be expected in the first full year of operation (1954).

Additional studies by the traffic engineers boost the original $4.1-million revenue estimate by 33%. This would bring the turnpike's anticipated income for the first year to about $5.4 million. The increased income estimate is based partly on upward revision of predicted traffic volume and partly on a higher toll schedule.

Kansas River Basin

Flood control solution is being sought now both in Washington and locally

Prospects are brightening for a break in the deadlock over rival flood-control proposals for the Kansas River Basin, as officials both in Washington and in the basin area step up efforts to find a solution.

Carrying the ball in the lower Kansas River Basin is a committee (representing 14 municipalities) formed several months ago to attempt to resolve the conflict between the Army Engineers' dam and reservoir plan and a program of channel improvements and levees recommended by a state-sponsored group of consulting engineers (ENR July 30, 1953, p. 25).

At a meeting in Topeka last week, it was revealed that no progress had been made in securing a compromise. But, it was apparent that the committee was pushing hard for some action.

• Army Engineers waiting it out—Meanwhile, according to unconfirmed reports, the Budget Bureau has requested preparation of a new federal flood control program for the Kansas River Basin. It is hoped that the program will serve as a basis for solving the big vs. little dam controversy which is delaying flood control work throughout the nation and creating a political problem for the Administration.

It was also learned from reliable sources that the Army Engineers themselves suggested that no appropriation for the controversial Tuttle Creek Dam be included in the Eisenhower budget. Apparently the Corps of Engineers has decided not to seek more funds for this and other key projects in the Kansas River Basin until local support has congealed behind a definite course of action. (Consultants for the state recommended halting construction on Tuttle Creek, Kirwin and Webster dams.)

• Revised Corps recommendations—Another unconfirmed report out of Washington was one to the effect that the Army Engineers have prepared a new recommendation for Kansas River Basin flood control that would match the $200-million estimated cost of the flow-way program advocated by the consultants engaged by the State of Kansas (ENR March 5, p. 21, June 18, p. 25).

The revised Army Engineer plan would replace the 34-dam program, discarding some of the small reservoirs not yet authorized. But, it would retain Tuttle Creek and several key dams awaiting authorization such as Milford on the Republican River and Perry on the Delaware. Higher levees at major cities are contemplated in the new plan and dikes for additional smaller communities.

It is understood that public announcement of its new plan presents a delicate problem of timing for the Army Engineers. To avoid possibility of an entanglement with local politics, the proposal may be kept under wraps until after the November elections.

Seek private financing for $85-million dam project

A river authority in Texas has voted unanimously to seek private financing for the construction of an $85-million dam and pipeline project that would supply water to 11 cities in the dry Texas Panhandle.

The dam, which would be one of the few major projects of its kind ever privately financed, would be located on the Canadian River. Some 320 mi of pipelines would serve the cities of Amarillo, Borger, Pampa, Plainview, Lubbock, Salton, Tahoka, O'Donnell, Levelland, Brownfield and Lamesa, Tex.

Route picked for extension of Pennsylvania Turnpike

The route of the Pennsylvania Turnpike's 100-mi northeastern extension has been mapped out. At a cost of an estimated $2 million a mile, it will start near Plymouth meeting on the Delaware River extension (now under construction) and end in Moosic, three miles south of Scranton.

Construction of this first north-south leg of the cross-state toll road is expected to start in March. The new extension—giving the turnpike an over-all length of 460 mi—is aimed at developing the industrial potential of the state's anthracite region.

Announcement of the route leaves in doubt the turnpike's eventual linkup with the New York Thruway near Binghamton. The decision not to build the 40-mi connecting section beyond Moosic at this time reportedly is due to the lack of assurance that the thruway will be open at that point in time to offer a junction with the Pennsylvania toll road.

Besides an extension to the thruway, future plans call for construction of a lateral turnpike from the Scranton area to the Delaware Water Gap to connect with the New Jersey Turnpike.

How would you vote?

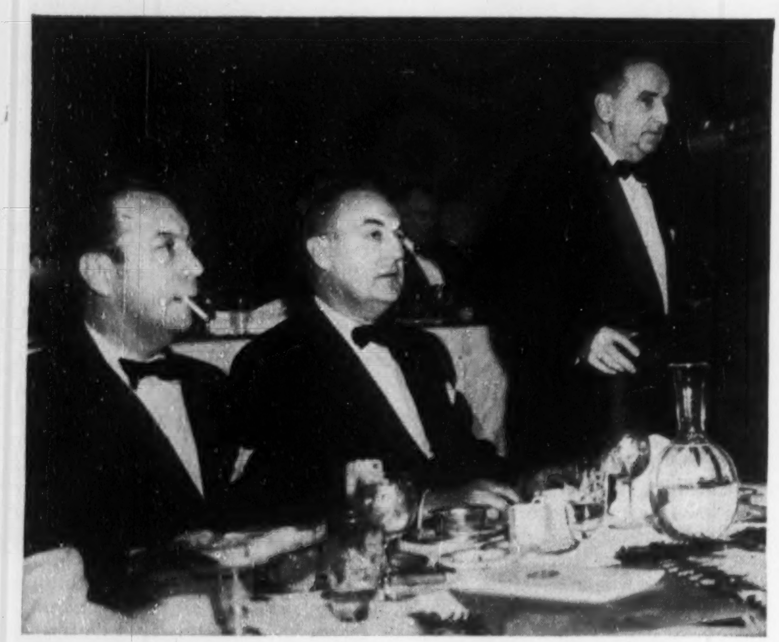
Most important engineering event of 1953

The pages of *Engineering News-Record* reported many events that promise to shape for the better the future course of civil engineering and construction. What would you pick as the most significant of those events in 1953? Or if that is too difficult, what were the three most significant?

The editors believe that the opinions of readers on what was important may be as significant as the events themselves. We need your vote quickly so that results can be published in the February Annual Report and Forecast issue. Just fill out the coupon and mail.

The Editors
Engineering News-Record
330 W. 42nd St.
New York 36, N. Y

Here is my vote on the most important engineering event(s) of 1953:



LAYING IT ON THE LINE—Howard McSpedon, head of New York Building and Construction Trades Council, outlines total peace plan at Building Trades Employers Assn. dinner. In center is Fred Driscoll, BTEA head, and at left New York's Mayor Robert F. Wagner.

New York building industry not happy with less than 100% labor peace

For 20 years the New York construction industry has been viewed as a good example of practical labor-contractor harmony—and elements of the industry are working hard to prevent disruption by outside groups.

There have been disagreements and hard feelings, but the Building Trades Employers Assn. and the Building and Construction Trades Council have stuck closely to the principle that the picket line is no place to settle arguments.

Last summer's strike of building materials truck drivers, which cost New York construction—management and labor alike—two of the year's best building months, left both the BTEA and the BTC shaken. The dispute-settling machinery of the BTEA had to stand inoperative while the strike dragged on. Teamsters' Local 282, which struck, is represented in the BTC, but employers of the drivers are not part of the BTEA.

At the yearly dinner of the BTEA recently in New York, Howard McSpedon, president of the BTC made little effort to disguise the concern of his group in preventing a recurrence of work loss through strikes not subject to the procedures of the BTEA-BTC agreements.

McSpedon told the formation of a contractor-union committee to delve into all aspects of such disputes, and while it was too early to outline specific plans, there was little doubt that before long the New York construction industry's machinery would be modernized to permit it to intrude into wrangles likely to limit work of contractors and construction labor.

• **Maintenance next?**—A hint of what may be in store for contractors specializing in maintenance work—and contractors who both build and manage office buildings—was dropped at the dinner.

The BTC has named a committee to study the complex area of securing guarantees of maintenance work for building union members and has asked the BTEA to do the same to make the exploration a joint one.

This is relatively new in contractor-labor relations, and the rest of the construction industry is sure to be watching whether workable maintenance work guarantees can be included in contracts as a matter of routine.

Business agent gets prison term; probe is accelerated

"There are men and women who tremble at the very thought of what this man and men like him have been doing in this community."

That's what a federal district judge said last week about Paul Hulahan, St. Louis labor leader, as he sentenced him to 12 years in prison for violating federal anti-racketeering laws.

Hulahan, business agent of Local 41 of the Hod Carriers, Building and Common Laborers Union, was the first to be tried of 16 building union leaders indicted as St. Louis poked with growing horror into conditions which have killed the enthusiasm of many a contractor trying to work in that city (ENR Jan. 21, p. 28).

The mess in St. Louis had little chance of being allowed to settle: A special racket investigator has been sent to town by the federal Justice Department to speed up the investigation. He's Max Goldschein, a special assistant attorney general with a national reputation as a director of grand juries.

Everybody works as 1923 ruling is applied in Denver strike

A 30-year-old work assignment decision was called into play last week to end a dispute with stopped work for three days on the $7-million, 23-story Denver Club Building.

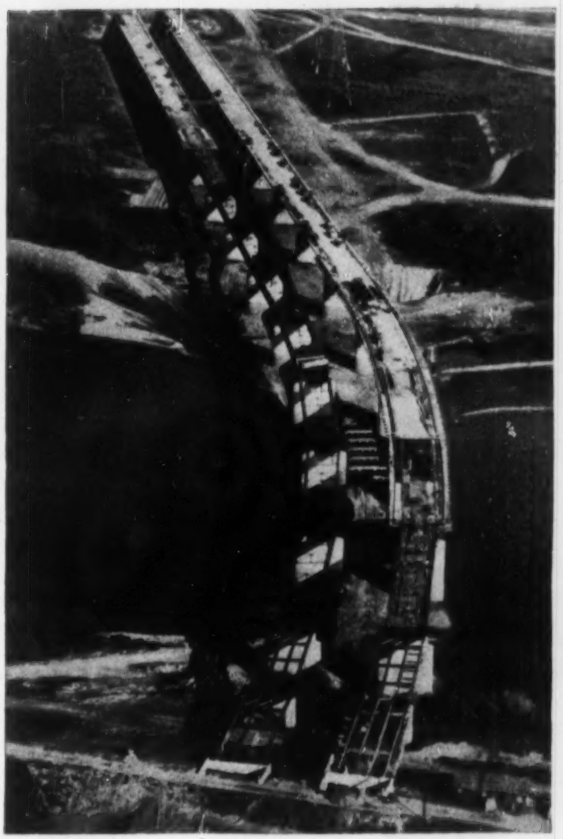
When Mead & Mount Construction Co. assigned lowering of an 18-ton boiler into the sub-basement to teamsters, two other unions, operating engineers and pipefitters, walked off the job.

The National Joint Board for the Settlement of Jurisdictional Disputes, called in for a decision, wasted no time in digging up a 1923 agreement. Result: everybody works. Teamsters deliver the boiler, operating engineers lower it, and pipefitters hook it up. Strike settled.

Labor bill in the works

South Carolina may join 14 other states in outlawing union membership as a condition for employment. A right-to-work bill, advocated by Governor James Byrnes, has been introduced in the state's legislature. The measure would declare contracts calling for union shops void.

ENGINEERING NEWS-PICTURES



TWIN BRIDGES

Key projects in California's highway expansion program are these bridges across the American River at Sacramento. Scheduled for completion next fall, they will link the Elvas Freeway with the North Sacramento Freeway at a cost of about $5 million. Each bridge will carry one-way traffic.

COAL BELT

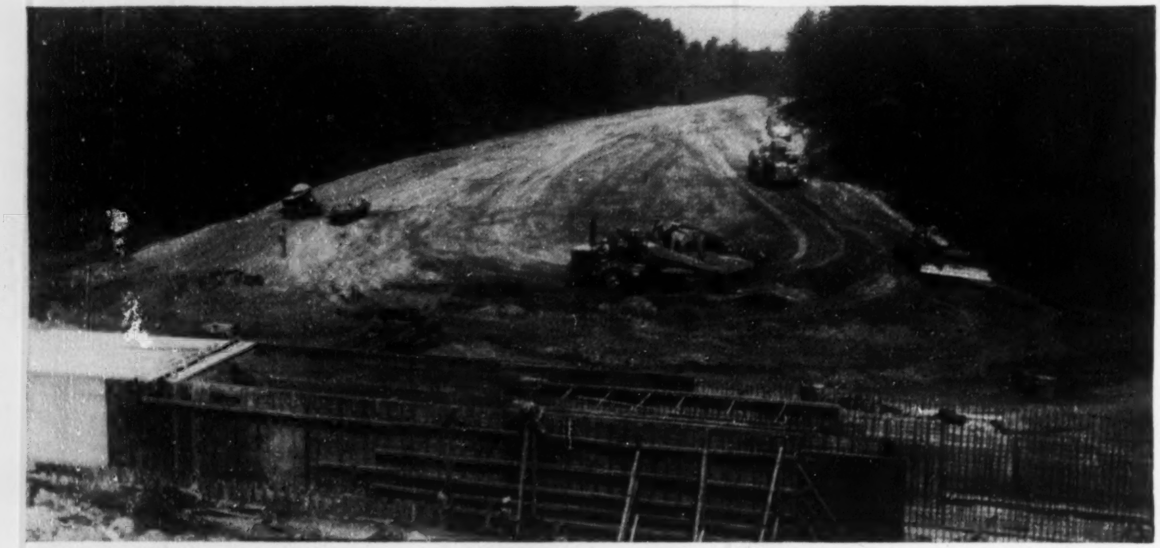
To feed the boilers of the Ohio Power Co.'s new 400,000-kw Muskingum River plant near Beverly, Ohio, Sollitt Construction Co., built this 4½-mi rubber conveyor belt system that will carry a steady supply of coal from stripping mine to the power plant's storage area.

Snaking its way over the countryside, the belt crosses backwoods roads, county highways and a 500-ft-wide river. According to B. F. Goodrich engineers, who fabricated the rubber belt, the coal will make the complete trip in less than 40 minutes.

The system is composed of 14 flights ranging in length from 500 ft to over a half-mile and will transport 800 tons an hour.

The belt is 36 in. wide and is driven by 14 motors with a total capacity of 1,435 hp. At some points along the hilly trip, the belt must carry its load up a 12 deg. incline. To carry the belt across the Muskingum River, a slender suspension bridge was erected 65 ft above the water.

Photo by Tobias



GRADING NEARS COMPLETION on federal portion of Baltimore-Washington Parkway as carpenters build forms for large box culvert. Located near Beltsville, it was the last drainage structure to bar travel by construction vehicles and machines.

U. S. and Maryland divide a parkway job

U. S. 1 between Baltimore and Washington, long a notoriously accident-ridden stretch of highway, next fall will be relieved of heavy traffic pressure by a limited-access route that has been under construction since the end of World War II.

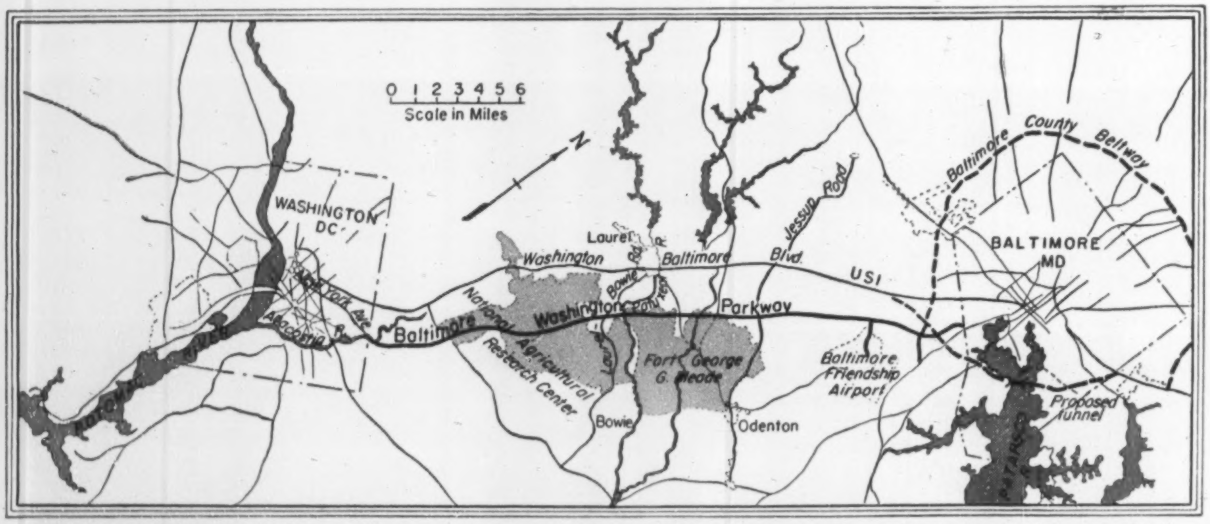
Called the Baltimore-Washington Parkway, the new road includes 10 miles built by the Maryland State Roads Commission and 19 miles under construction (also in Maryland) by the U. S. Bureau of Public Roads. The state portion was completed and opened to traffic in August, 1953. Some of the features of 1953 federal construction on the parkway are illustrated.

Although the full 29 miles from the Baltimore line to the District of Columbia line will not be open until next fall, seven miles of the federal project were opened last fall. At the same time a viaduct inside Baltimore was opened, providing an express connection from the heart of the city southwestward to Laurel, Md.

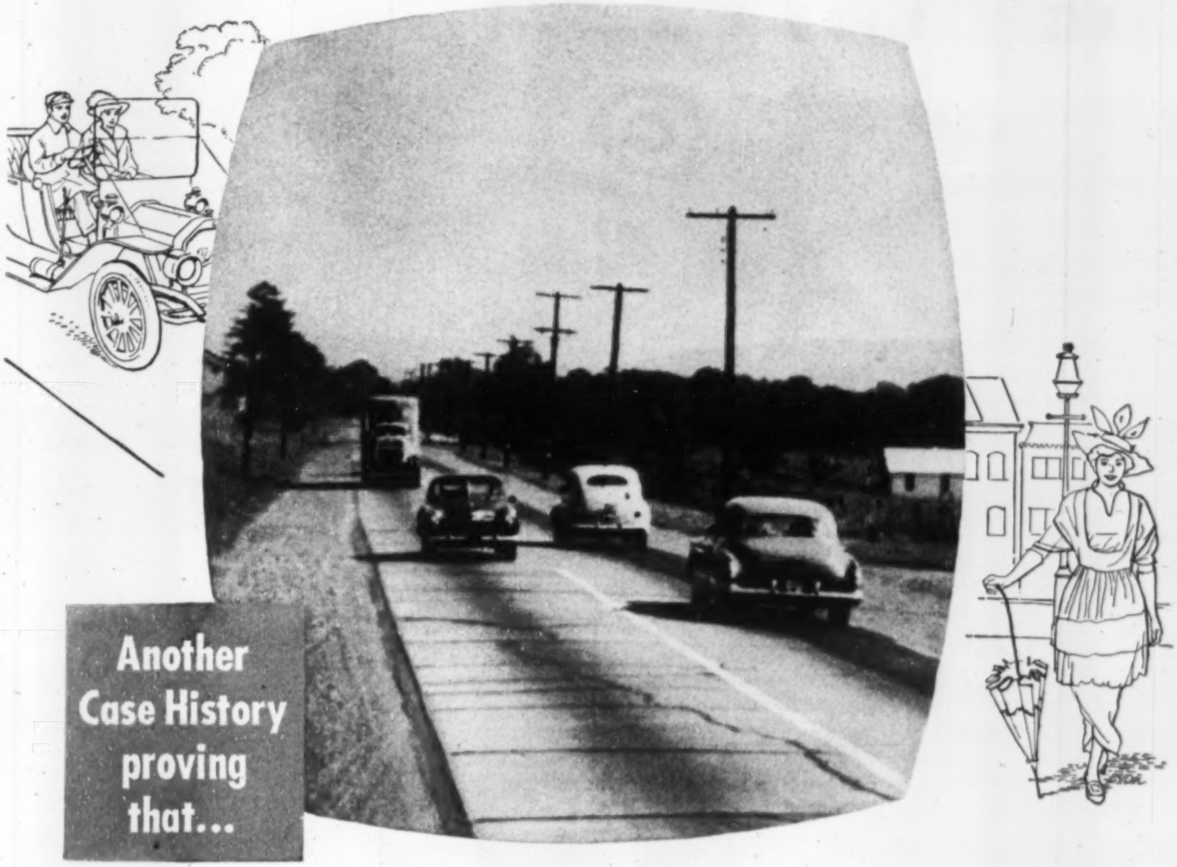
Parkway connections at the Baltimore end are going to get better and better as time goes on. For through coastwise traffic there will be a road and tunnel by-passing the city's business district to the southeast (ENR Aug. 13, p. 24). Designs and financing for this project are under way at the present time.

For connection to routes radiating northward and westward from Baltimore the State Roads Commission plans the Baltimore County Beltway (ENR Dec. 25, 1952). Definite location for this $43-million limited-access highway has been chosen, but the full construction schedule has not been announced.

Inside the District of Columbia, a short connection will be required between the parkway and New York


0 1 2 3 4 5 6
Scale in Miles
N
WASHINGTON DC
New York Ave
Anacostia R.
Potomac River
Baltimore Washington Parkway
National Agricultural Research Center
Laurel
Washington Baltimore Blvd.
Bowie Rd.
Laurel
Jessup Road
US1
Parkway
Fort George G. Meade
Bowie
Odenton
Baltimore Friendship Airport
Baltimore County Beltway
BALTIMORE MD
Proposed tunnel
Patapsco R.

FEDERAL PORTION of Baltimore-Washington Parkway runs from D.C. line northward to Jessup Road. Maryland has completed its part onward to Baltimore city line, and parkway is open from Laurel-Bowie road northward. Light-shaded portion is federal land.



Another Case History proving that...

Concrete Roads Deliver Unexcelled Service and Economy

This old road is N. J. 24 from Phillipsburg to Washington. It was built in 1912 of 6-in. concrete 14 to 18 ft. wide without a center joint. It later was widened to 20 ft.

For more than 40 years this concrete highway has carried growing weights and volumes of traffic. Today it handles a daily average of 5,220 vehicles, 15.5 per cent of them commercial.

N. J. 24 shows the effects of this time and traffic. It paid for itself long ago but goes on earning money for new roads out of license fees and gas taxes paid by drivers who travel on it.

N. J. 24 demonstrates the ***low annual cost*** and the ***high annual earnings*** of concrete roads. In its life other types of pavement were replaced or rebuilt many times or gobbled up an unduly large share of highway revenues just for maintenance.

Today N. J. 24 is inadequate. Yet it will pay taxpayers an extra dividend by becoming part of the base for a new 24-ft. concrete highway.

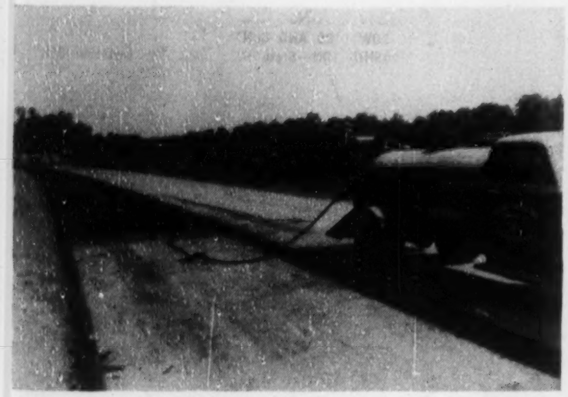
All over the country hundreds of miles of concrete roads like N. J. 24, having served beyond their life expectancies, still constitute the load-carrying slab of resurfaced highways.

Such extraordinary performances clearly prove that the ***low annual cost*** and ***high earning capacity*** of concrete make it the best pavement value.

Moderate first cost
+ low maintenance
÷ long service life
= low annual cost

PORTLAND CEMENT ASSOCIATION

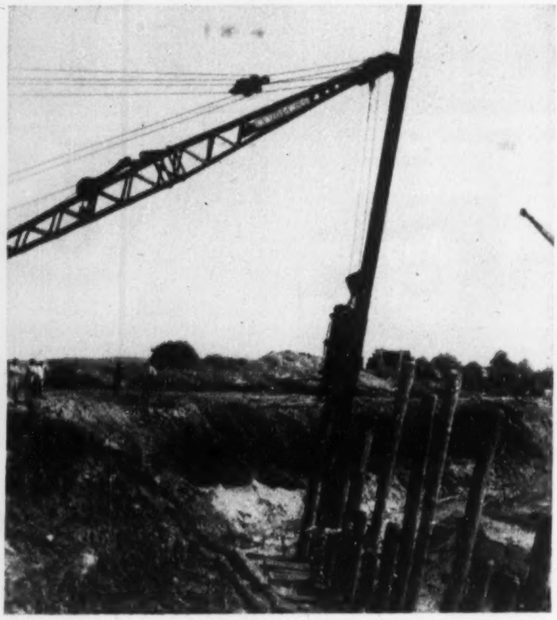
33 West Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete . . .
through scientific research and engineering field work



ASPHALTIC TREATMENT of granular subgrade's surface was specified as means for reducing chances of subgrade pumping.

PAVING went forward under two contracts during the 1953 season. This is spread run by Wright Contracting Co., Columbus, Ga.

ANACOSTIA RIVER BRIDGE foundation cut is dewatered by wellpoints in sanded holes. Hole-sanding casing is in center.



SPUD LEAD carries hammer for driving wood piles at back of Anacostia River Bridge abutment.

Ave., which now takes part of the traffic of U. S. 1.

• Participation logical—Federal participation in the Baltimore-Washington Parkway is more logical than might appear at first glance. About half of the 19 miles is on government-owned property (the National Agricultural Research Center and Fort George G. Meade are two major holdings), so right-of-way acquisition was simpler under government sponsorship. And the government can claim an interest from the standpoint of improved communication between administrative offices in Washington and these outlying facilities. (A similar situation existed during the war when the federal government built Suitland Parkway, eastward from the District of Columbia to Andrews Air Force Base.)

But federal participation in the Baltimore-Washington project has come slowly. Preliminary studies were made in the Thirties. Private rights-of-way were acquired by 1946 for $450,000—probably a bargain in view of commercial and residential growth that since has taken place along the lower end of the route. Field construction got under way in 1945 with the award of $1.2-million worth of grading and drainage structures. Work then languished until 1950, when more money was appropriated to start the final push. By last fall all contracts but one for paving 2½ miles were let. Total cost of the federal portion will be $16.5 million.

Meanwhile, in 1949 Maryland began work on its section, stretching it steadily over a four-year period. Total cost (10 miles, plus 11 miles of connecting parkway) was $14.2 million.

• Design considerations—Design features of state and federal portions of the parkway are largely similar. On the federal project minimum right-of-way width is 400 ft, the full project width running as high as 650 ft in places. Except at bridges and heavy cuts and fills, the two roadways were designed separately, each to fit the terrain as a single road. This results in a mall of varying character—at places one roadway is not visible from the other. Design speed is 70 mph. Grading contracts provide width for three paved lanes, but present paving covers only two in each direction.

For the most part, paving is portland-cement concrete. Special care was taken by designers to eliminate pumping of subgrade materials from under the slab. A 12-in. compacted topping course of selected granular material is sealed with rapid-curing

tt
TUBE-TURN
TRADE MARKS

Remember — the trade marks "tt" and "TUBE-TURN" are applicable only to products of TUBE TURNS, INC.

Engineered FOR ENDURANCE

THIS TUBE-TURN WELDING TEE is drawn from seamless tubing to a barrel shape—the form every tee wants to assume under pressure. This design, plus the generous crotch radius and thickness, assure exceptional strength and endurance. In tests of representative fittings, bursting pressures have averaged over 25% higher than required by applicable standards.

This extra quality at no extra cost is typical of all TUBE-TURN Welding Fittings and Flanges. For satisfying service, and to fill all your requirements from one reliable source, get in touch with your nearby TUBE TURNS' Distributor. You'll find one in every principal city.

The Leading Manufacturer of Welding Fittings and Flanges

TUBE TURNS, INC. LOUISVILLE 1, KENTUCKY

DISTRICT OFFICES: New York • Philadelphia • Pittsburgh • Cleveland • Chicago • Denver • Los Angeles • San Francisco
Seattle • Atlanta • Tulsa • Houston • Dallas • Midland, Texas

Subsidiaries: TUBE TURNS OF CANADA LIMITED, CHATHAM, ONTARIO • PENNSYLVANIA FORGE CORPORATION, PHILADELPHIA, PA.

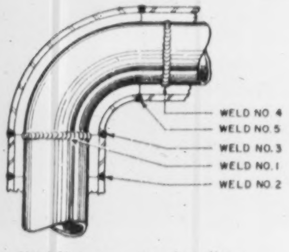
ENGINEERING SERVICE

TUBE TURNS' ENGINEERING SERVICE

develops new method of fabricating jacketed fittings

FABRICATION TIME AND COST can be reduced with this method of using welding fittings for directional changes in jacketed piping systems. The jacketed fitting combination consists of long and short radius TUBE-TURN Welding Elbows, with center-line radii closely matching. A tangent on one end of the inside elbow (see cut) extends beyond the corresponding end of the outside elbow. On the other end a short length of pipe is attached to simplify installation.

The method eliminates the need for steam and coolant jumpers, and also eliminates flanged joints, except where disassembly must be provided for. Insulation can be readily applied. Maintenance costs are sharply reduced, as all joints are permanently leakproof. The assembly provides optimum flow conditions, and minimized thermal problems.

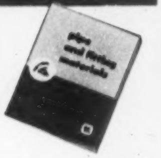


Welding sequence for elbow of jacketed system.

This improved technique is another contribution to piping technology by TUBE TURNS' Engineering Service Division—always ready to help you with special piping problems.

Want Piping Information?

TUBE TURNS, INC. is recognized the world over for its leadership, not only in the field of welding fittings and flanges, but as a source of authentic information on piping design.



TUBE TURNS, INC., Dept. E-2
224 East Broadway, Louisville 1, Kentucky

Please send me free copy of Pipe and Fitting Materials.

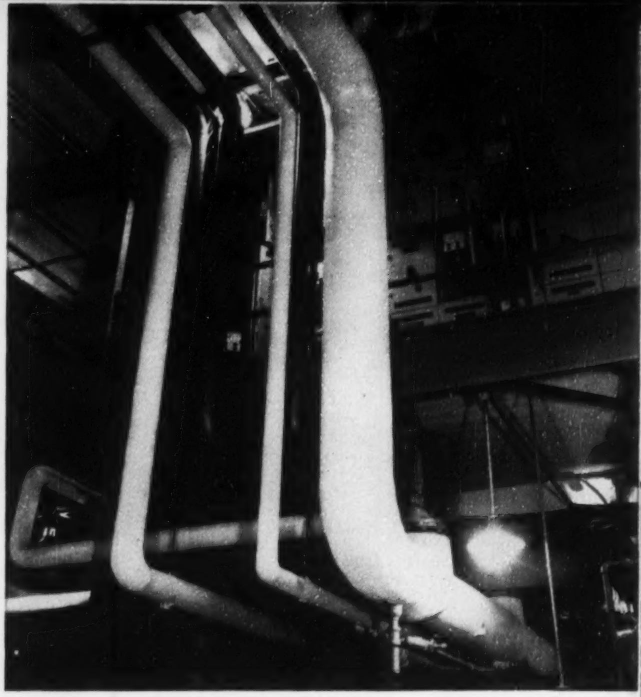
Company Name ______________________

Company Address ______________________

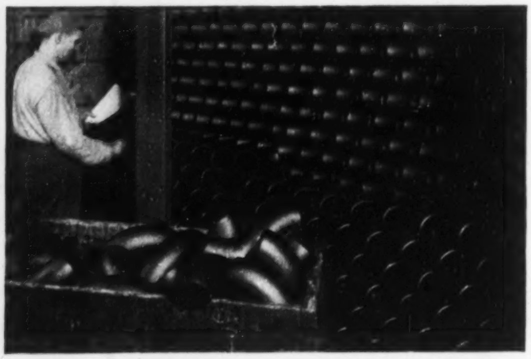
City ______________ *Zone* ______ *State* ______

Your Name ______________________

Position ______________________



These water, steam, and air lines, using TUBE-TURN Welding Fittings to make directional changes, provide permanently leakproof service. Note compactness of layout, and how neatly insulation is applied.



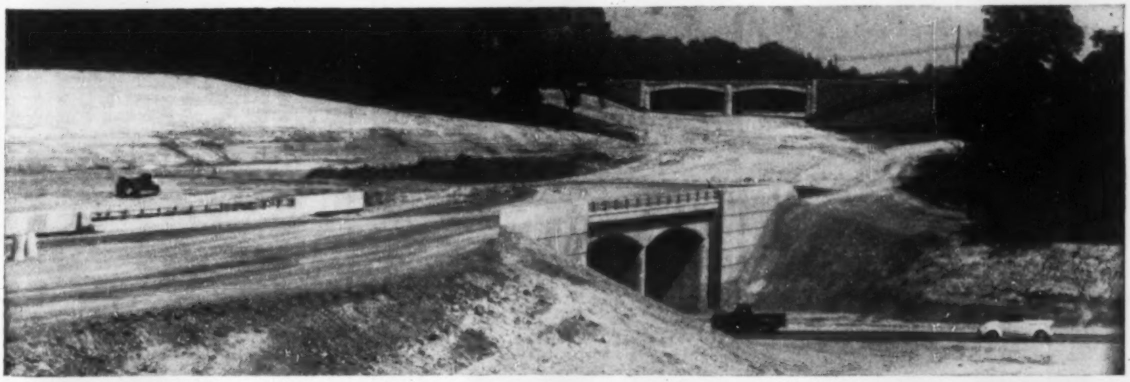
SERVICE is the middle name of your nearby TUBE TURNS' Distributor. He can help you fill all your requirements from one reliable source. TUBE TURNS, INC. offers the world's broadest line of welding fittings and flanges, in a wide range of types, sizes, and more than 40 different alloys.

DISTRICT OFFICES

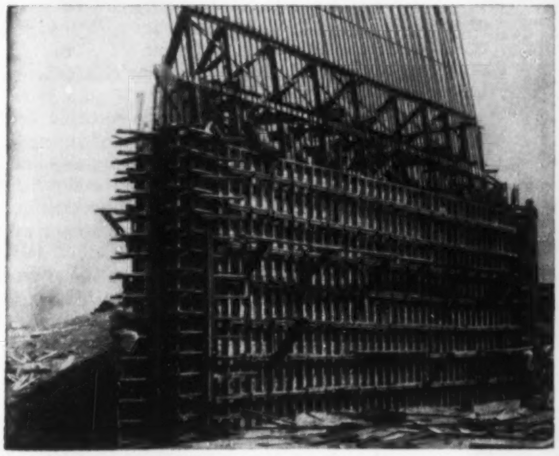
New York	Midland
Philadelphia	Tulsa
Pittsburgh	San Francisco
Cleveland	Los Angeles
Chicago	Seattle
Houston	Atlanta
Dallas	Denver

"tt" and "TUBE-TURN" Reg. U. S. Pat. Off.

TUBE TURNS, INC.
LOUISVILLE 1, KENTUCKY



GRADE SEPARATIONS on Baltimore-Washington Parkway are of unadorned architectural concrete where local roads pass under parkway (center); stonefaced where local roads pass over (background) and parkway motorists can see them.



RIGID-FRAME DESIGN used on all parkway grade separation structures. Reinforcing steel awaits bending-down to make haunch.

STONE WORK on grade separations is handsome, unobtrusive, typical of National Park structures.

cutback asphalt at ¼ gal per sq. yd.

The principal exception from concrete-paving practice occurs on a ¾-mile stretch at Anacostia River, just outside the D. C. line. Here, unstable ground had to be consolidated by surcharging with 5 ft of earthfill above design subgrade, and a flexible pavement is specified. (On the state portion there are several short sections of flexible pavement on high fills over marshy areas adjacent to bridges.)

• Structures—The project's major bridge also is at Anacostia River. Costing $1.5 million, it is notable partly for the excavation technique used for one pier and one abutment located west of the river bank. A broad basin 30 ft deep and 180 ft square at the top was excavated. The two opposite sides of this basin contained the pier and the abutment. This excavation was kept dry by two wellpoint rings, one with its header around the top edge of the excavation and one on the slope about 18 ft down. The rear of the abutment in this excavation is supported by timber piles, the front wall resting on firm ground. The pier is on firm ground.

The second and third piers and the other abutment also rest on firm ground, but because they are, respectively, in the river and at the east bank they were built in open cofferdams. To carry six lanes of traffic, the Anacostia River bridge will be a continuous deck plate girder structure with four spans varying from 89 to 114 ft in length.

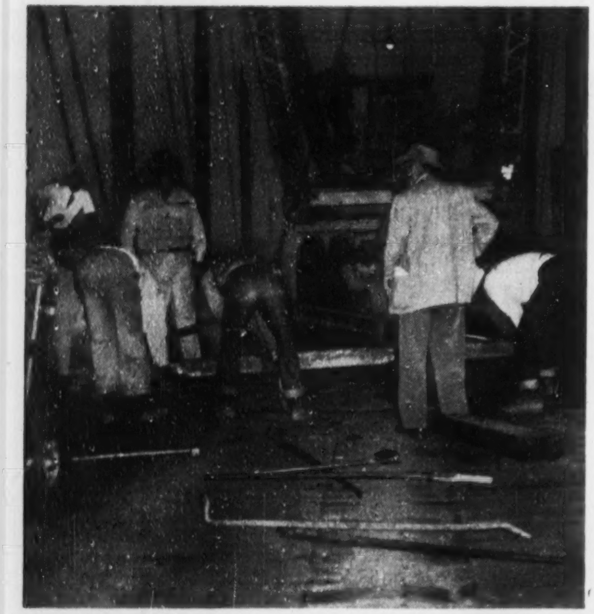
Other major structures on the federal project include two half-million dollar bridges across the Patuxent and Little Patuxent rivers, and 15 grade-separations. Of rigid-frame concrete design, the grade-separation structures are faced with stone where the parkway passes under them. Where the parkway passes over a local road, stone trim is omitted—evidently because the trim would not be visible to the traveler on the parkway. The state project similarly includes 15 grade-separation structures and two long bridges. There are five interchanges.

In the 19-mile federal project, interchanges with local roads occur about every two miles. The parkway will be for the use of passenger vehicles only, and under the jurisdiction of the National Park Service.

• Management—H. J. Spelman, division engineer for the U. S. Bureau of Public Roads, is in charge of federal work, and E. L. Tarwater, district engineer, is in charge of construction. Key Maryland State Roads Department men are W. F. Childs, Jr., chief engineer; W. C. Hopkins, deputy chief engineer; and C. A. Goldeisen, assistant chief engineer for construction.

Contractors at work on the parkway during the 1953 construction season include Wright Contracting Co., Columbus, Ga. (grading and paving); Taylor Const. Co., Asheville, N. C. (grading); J. O. & C. M. Stuart, Washington, D. C. (grading); T. E. Ritter Corp., Norfolk, Va. (paving); C. H. Tompkins, Washington, D. C. (Anacostia bridge); and Troitino & Brown, Asheville, N. C. (two bridges); and Allied Contractors, Baltimore (one bridge).

Reflooring old bridge with saves 131,345



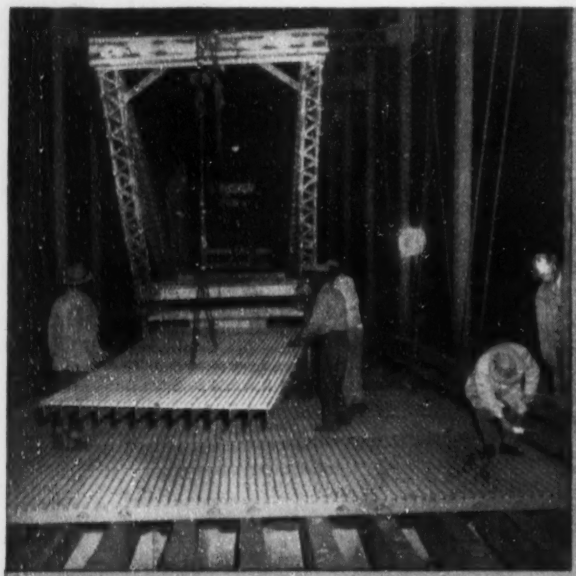
THE OLD FLOOR SYSTEM consisted of 6″ x 14″ wood stringers, 3″ wood decking and four lines of ¼″ x 30″ steel tread plates. Crew is shown removing the outdated floor in preparation for new I-Beam-Lok lightweight steel flooring.

● From the Louisiana State Department of Highways comes another interesting example of the use of I-Beam-Lok on a modernization job.

The project was the reflooring of the 18′ roadway of the 767 ft. long Alexandria-Pineville bridge over the Red River in Rapides Parish. The old timber floor was difficult to maintain under the increasingly heavy traffic.

The problem involved finding a suitable flooring that would not add to the deadweight of the supporting structure, yet would be more permanent, and require less maintenance than the existing floor. U·S·S I-Beam-Lok open steel flooring met all requirements.

The engineers estimate that the new floor system including steel stringers, 14,856 sq. ft. of 5″ I-Beam-Lok, steel curbs and concrete fill over the pivot pier weighs only 502,914 lbs. for the entire bridge. Compared with a total weight of 634,259 lbs. for the old floor system it replaced, the savings in weight through the use of I-Beam-Lok is 131,345 lbs.



THIS PHOTO SHOWS temporary positioning of a few I-Beam-Lok units on present wood stringers to allow traffic to flow on following morning. These units to be lifted later for installation of permanent steel stringers on which I-Beam-Lok units are to be permanently welded.

BRIDGE WAS KEPT OPEN to traffic each day from 6:00 a.m. to 10:00 p.m. Vehicles moved safely over the newly laid I-Beam-Lok without interruption as all construction work was done late at night.

PROJECT: Reflooring of Alexandria-Pineville (Red River) bridge on Routes 5 and 14 in Rapides Parish, Louisiana.

ENGINEERS: State of Louisiana Department of Highways. J. B. Carter, Bridge Design Engineer, Baton Rouge, Louisiana.

CONTRACTORS: Forcum-James Company, Baton Rouge, Louisiana.

U·S·S I-BEAM-LOK

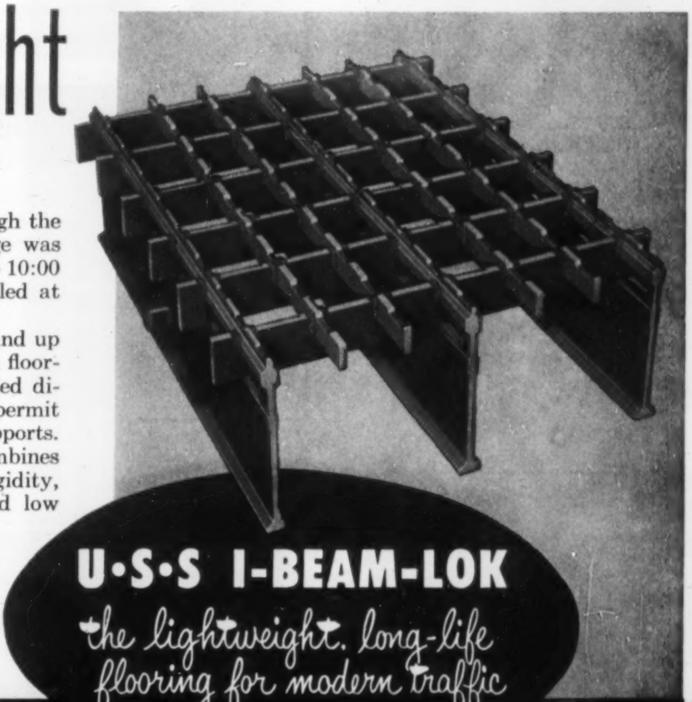
lbs. deadweight

KEPT OPEN TO TRAFFIC

Another important advantage gained through the use of I-Beam-Lok was that the busy bridge was kept open to traffic each day from 6:00 a.m. to 10:00 p.m. while the new flooring was being installed at night.

Available in units measuring 6′-2″ in width and up to 49′ in length, this lightweight, all-steel open flooring with its strong, full 5″ depth can be applied directly to stringers on spans up to 4′ centers to permit H-20 loadings. It does not require secondary supports.

This "modern floor for modern traffic" combines lightweight and reduced costs with roadway rigidity, ease of erection, a smooth, hard surface and low maintenance costs. It is available in both concrete-filled and open types. Our engineers will be glad to discuss its possibilities with you. For more information about U·S·S I-Beam-Lok steel flooring, contact the sales office nearest you.



SECTIONS OF NEWLY LAID I-BEAM-LOK were speedily welded together with ordinary field equipment. This lightweight steel open flooring produces a smooth-riding, non-skid, self-cleaning and long-wearing surface.

THIS OVERHEAD VIEW of the newly refloored bridge shows the clean open pattern of U·S·S I-Beam-Lok.

UNITED STATES STEEL CORPORATION, PITTSBURGH · COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S I-BEAM-LOK

UNITED STATES STEEL

WEATHER

THE 30-DAY FORECAST of the U. S. Weather Bureau for the period from mid-January to mid-February calls for temperatures to average below seasonal normals over most of the nation except for above normal in the Southwest and along the Gulf coast. The greatest unseasonable coldness is expected over the Great Lakes Region and Ohio Valley.

Precipitation is expected to exceed normal in the Gulf States and from the Appalachians eastward, with frequent snows from Virginia northward. Greater than normal precipitation is also predicted for central and southern portions of the west coast states, and the northern Rocky Mountain States, but subnormal amounts are indicated over the Great Lakes and upper Mississippi Valley. In areas not specified about normal precipitation is expected.

OBSERVED PRECIPITATION AND TEMPERATURE IN 20 CITIES, COMPARED WITH NORMALS

	Precipitation, inches				Temperature, degrees F.			
	Dec. 1953	Departure fr. normal	12 mos. 1953	Departure fr. normal	Mean Dec. '53	Departure fr. normal	Av. daily Maximum	Av. daily Minimum
Atlanta	7.75	+3.20	52.14	+1.14	43.8	−1.4	52.7	34.9
Baltimore	3.47	+0.52	49.28	+6.69	42.8	+4.0	49.4	36.1
Birmingham	9.04	+3.79	49.96	−3.56	43.4	−2.3	53.6	33.2
Boston	5.09	+1.72	57.73	+18.97	40.2	+7.4	48.1	32.2
Chicago	3.10	+1.15	30.15	−2.57	31.8	+3.8	39.0	24.5
Cincinnati	1.70	−1.14	27.90	−11.88	36.1	+1.1	44.4	27.7
Cleveland	2.62	+0.33	32.16	+0.08	34.1	+3.2	41.5	26.6
Dallas	1.71	−0.91	25.31	−9.11	45.6	−2.7	55.4	35.8
Denver	0.64	+0.14	12.56	−0.87	33.8	−0.3	44.7	22.9
Detroit	1.35	−0.85	23.86	−7.17	33.7	+4.2	39.7	27.6
Kansas City	1.83	+0.33	20.93	−14.38	36.0	+2.3	44.0	27.9
Los Angeles	0.08	−3.3	4.08	−9.73	59.1	+1.8	69.6	48.5
Minneapolis	1.76	+0.91	27.91	+3.21	22.0	+2.6	31.0	12.9
New Orleans	8.68	+4.10	72.61	+9.07	53.6	±3.5	60.5	46.6
New York	4.01	+0.94	46.26	+4.23	40.7	+5.0	47.1	34.3
Philadelphia	4.82	+2.05	50.47	+9.16	41.7	+4.3	48.5	34.9
Pittsburgh	1.84	−1.73	31.21	−5.71	38.1	+2.9	32.0	28.0
St. Louis	0.46	−1.97	22.98	−14.88	39.1	+2.9	47.6	30.5
San Francisco	0.82	−3.25	12.65	−7.86	55.0	+3.1	61.3	48.7
Seattle	3.31	−2.03	38.13	+6.21	45.0	+1.9	48.7	41.2

PRECIPITATION RANGE IN 20 CITIES, IN INCHES

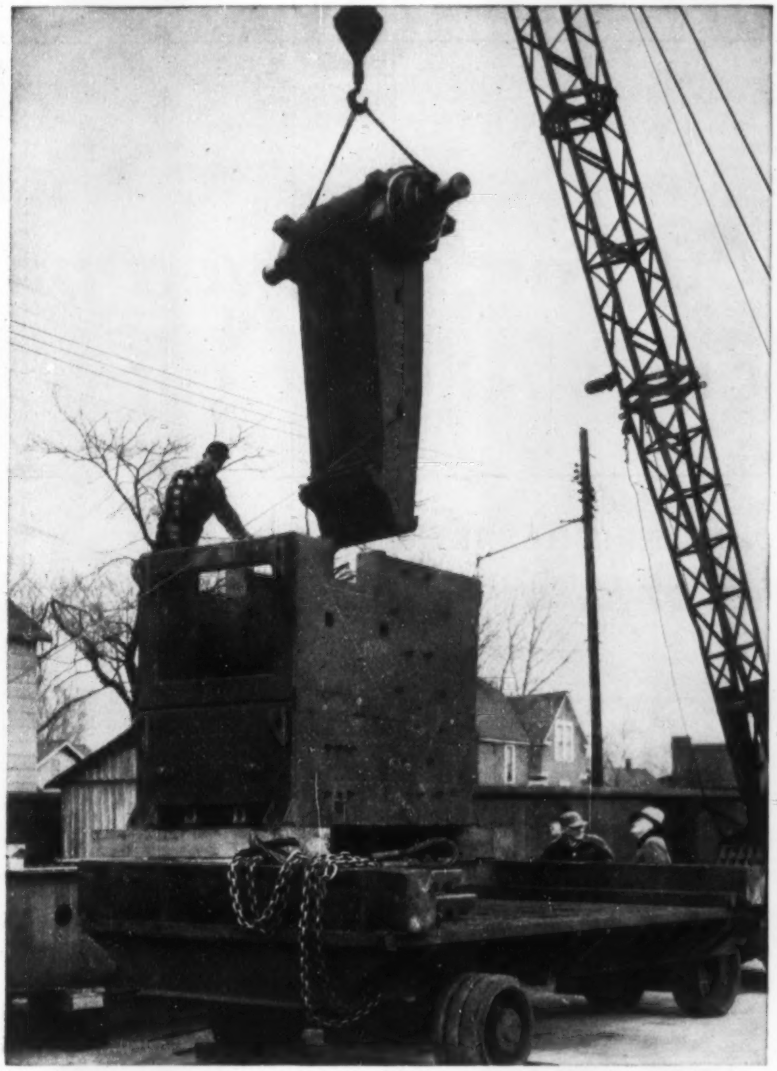
Table shows range observed 33.3% of time. Rainfall heavier 33.3% of time, lighter 33.3% of time.
Computed by U. S. Weather Bureau (based on historical records of actual precipitation)

City	Jan.	Mid. Jan.-Mid. Feb.	Fe^bruary	Mid. Feb.-Mid. Mar.	March	Mid. Mar.-Mid. Apr.	April	Mid. Apr.-Mid. May	May	Mid. May Mid. June	June	Mid. June-Mid. July	July	Mid. July-Mid. Aug.
Atlanta	3.39/5.33	3.38/5.50	3.36/5.67	3.40/6.00	3.43/6.33	3.12/5.72	2.82/5.10	2.48/4.72	2.14/4.33	2.50/4.38	2.87/4.43	2.93/4.62	2.99/4.80	2.89/4.90
Baltimore	2.77/3.96	2.57/3.63	2.36/3.39	2.48/3.76	2.59/4.13	2.59/4.17	2.58/4.20	2.76/4.30	2.94/4.40	2.73/4.42	2.52/4.44	2.57/4.71	2.61/4.98	2.91/5.32
Birmingham	3.75/5.40	3.61/5.64	3.47/5.88	4.18/6.26	4.48/6.63	3.91/5.85	2.94/5.07	3.05/4.81	3.16/4.55	2.90/4.70	2.64/4.84	3.29/5.18	3.94/5.53	3.44/5.39
Boston	2.77/4.05	2.70/3.99	2.64/3.93	2.79/4.22	2.94/4.50	2.66/4.45	2.39/4.40	2.58/4.29	2.76/4.18	2.42/3.84	2.09/3.50	2.35/3.76	2.61/4.02	2.60/4.36
Chicago	1.29/2.10	1.40/2.16	1.52/2.23	1.76/2.67	1.99/3.11	2.09/3.12	2.19/3.13	2.24/3.56	2.16/4.00	2.29/3.88	2.42/3.67	2.46/3.66	2.49/3.65	2.31/3.65
Cincinnati	2.34/3.80	2.07/3.40	1.80/3.00	2.10/3.64	2.39/4.29	2.66/3.94	2.34/3.60	2.42/3.85	2.49/4.10	2.59/4.30	2.69/4.50	2.54/4.10	2.39/3.70	2.32/3.95
Cleveland	1.59/2.60	1.55/252	1.51/2.43	1.81/2.71	2.10/2.98	2.15/3.13	2.20/3.27	2.27/3.38	2.33/3.49	2.17/3.53	2.00/3.56	2.24/3.82	2.47/4.08	2.15/3.84
Dallas	1.39/3.10	1.49/2.70	1.59/2.30	1.96/3.08	2.34/3.86	2.50/4.68	2.66/5.50	2.82/5.33	2.99/5.25	2.39/4.85	1.79/4.45	1.59/3.72	1.39/3.00	1.30/2.89
Denver	0.18/0.50	0.26/0.54	0.34/0.58	0.46/0.84	0.59/1.10	0.96/1.75	1.34/2.40	1.48/2.65	1.62/2.90	0.64/2.32	0.67/1.75	0.94/1.88	1.21/2.00	1.04/1.86
Detroit	1.62/2.40	1.56/2.45	1.51/2.50	2.14/2.64	1.77/2.78	1.78/2.76	1.79/2.73	2.14/3.20	2.49/3.67	2.66/3.88	2.84/4.10	2.46/3.90	2.09/3.70	1.94/3.54
Kansas City	0.59/1.42	0.80/1.66	0.99/1.90	1.29/2.40	1.59/2.90	1.99/3.15	2.39/3.40	2.82/4.40	3.24/5.40	3.42/5.82	3.61/6.25	3.19/5.47	2.77/4.69	2.74/4.84
Los Angeles	1.24/3.30	1.12/3.25	0.99/3.20	1.06/3.08	1.13/2.95	0.68/1.92	0.22/0.90	0.14/0.62	0.05/0.35	0.02/0.18	0.00/0.02	0.00/0.01	0.00/T	0.00/T
Minneapolis	0.64/1.08	0.58/1.08	0.52/1.08	0.75/1.38	0.98/1.67	1.34/2.14	1.69/2.60	2.16/3.29	2.64/3.98	2.89/4.49	3.14/5.00	2.64-4.50	2.14/4.00	2.16/3.85
New Orleans	3.49/5.40	3.14/5.05	2.79/4.70	3.00/5.00	3.22/5.30	2.94/5.15	2.66/5.00	2.65/5.12	2.64/5.25	3.18/5.88	3.72/6.50	4.54/6.95	5.37/7.40	4.90/7.08
New York	2.46/3.65	2.41/3.88	2.36/4.10	2.35/4.08	2.34/4.05	2.40/3.92	2.47/3.78	2.50/3.90	2.54/4.02	2.45/3.91	2.36/3.80	2.81/4.25	3.26/4.70	2.99/4.95
Philadelphia	2.57/3.70	2.57/3.69	2.57/3.68	2.60/3.84	2.62/4.00	2.56/3.91	2.49/3.82	2.44/4.11	2.39/4.40	2.54/4.25	2.69/4.10	2.94/4.24	3.19/4.37	2.99/4.91
Pittsburgh	2.14/3.13	1.96/2.98	1.77/2.83	2.06/3.15	2.34/3.47	2.32/3.44	2.29/3.40	2.39/3.58	2.49/3.75	2.68/3.98	2.86/4.20	2.79/4.35	2.72/4.50	2.52/4.15
St. Louis	1.39/2.70	1.48/2.80	1.57/2.90	1.92/3.42	2.27/3.95	2.43/3.88	2.59/4.10	2.86/4.65	3.13/5.20	2.96/5.25	2.79/5.30	2.60/4.78	2.41/4.25	2.28/4.18
San Francisco	2.49/5.00	2.24/4.86	1.99/4.71	1.96/4.13	1.94/3.55	1.30/2.54	0.67/1.54	0.44/1.12	0.18/0.69	0.09/0.37	0.00/0.05	0.00/0.03	0.00/0.01	0.00/0.00
Seattle	4.12/5.25	3.34/4.92	2.55/4.60	2.18/4.02	1.81/3.43	1.72/3.16	1.64/2.90	1.53/2.45	1.42/2.00	1.09/1.86	0.76/1.73	0.48/1.20	0.19/0.67	0.18/0.78

MEAN TEMPERATURE RANGE IN 20 CITIES, IN DEGREES F.

Table shows range observed 25% of time. Mean temperature higher 37.5% of time, lower 37.5% of time.
Computed by U. S. Weather Bureau (based on historical records of actual temperature)

City	Jan.	Mid. Jan.-Mid. Feb.	February	Mid. Feb.-Mid. Mar.	March	Mid. Mar.-Mid. Apr.	April	Mid. Apr.-Mid. May	May	Mid. May-Mid. June	June	Mid. June-Mid. July	July	Mid. July-Mid. Aug.
Atlanta	43.5/45.5	44.0/46.4	45.1/47.9	47.5/50.1	51.2/53.6	55.9/58.0	60.9/62.6	64.9/66.5	69.0/70.5	73.5/74.6	77.3/78.1	78.5/79.3	79.0/79.9	78.9/79.9
Baltimore	33.9/35.7	33.4/36.0	34.6/38.0	38.1/41.7	42.0/45.7	46.6/49.4	51.9/53.6	57.5/59.0	63.4/64.6	68.2/69.5	72.5/73.8	75.2/76.6	76.2/77.5	75.5/77.3
Birmingham	43.5/46.5	44.4/47.6	46.0/49.4	48.8/5.17	52.4/54.7	56.6/58.5	61.1/62.6	64.6/66.3	68.4/70.2	72.4/74.5	76.8/78.1	78.4/79.7	78.9/80.0	79.0/80.3
Boston	27.9/31.2	26.4/29.6	27.8/30.0	31.4/34.0	35.6/38.6	41.1/43.3	46.7/48.3	51.5/53.1	56.7/58.4	56.8/58.6	66.3/68.1	69.6/71.1	71.7/73.0	72.1/73.4
Chicago	23.2/28.1	23.1/28.1	24.7/30.0	29.2/34.2	34.6/39.1	40.9/43.8	47.5/48.8	52.7/54.7	57.9/60.5	63.1/66.1	68.0/71.2	71.6/74.0	73.7/75.1	73.8/75.4
Cincinnati	29.8/34.5	29.9/34.4	31.6/36.0	35.2/39.2	39.6/43.1	45.4/48.1	51.4/53.3	56.4/58.6	61.5/64.0	66.7/68.9	71.2/73.0	73.4/75.2	74.1/75.8	73.9/75.7
Cleveland	26.9/30.5	26.0/29.6	26.2/29.7	29.8/33.7	34.7/38.8	40.3/43.2	46.2/47.8	51.8/53.9	57.9/60.3	63.5/65.7	68.2/70.2	71.2/73.0	72.7/74.2	72.5/74.2
Dallas	44.1/47.5	45.8/49.2	48.8/52.2	51.9/55.6	55.5/59.6	60.1/63.7	64.2/67.3	68.4/71.1	72.8/75.0	77.2/78.8	81.1/82.2	83.3/84.6	84.5/86.4	85.6/87.3
Denver	27.0/30.0	27.9/31.5	30.5/34.7	33.1/36.8	35.9/39.1	40.4/43.2	46.3/48.6	51.1/53.4	55.2/57.4	60.0/62.1	65.4/67.5	69.7/71.5	72.1/73.7	72.5/74.0
Detroit	24.8/27.7	24.2/27.8	24.6/28.9	27.9/32.1	33.1/37.2	39.3/42.1	45.6/47.1	51.0/52.8	56.5/58.7	62.3/64.4	67.3/69.4	70.6/72.1	72.5/73.5	72.3/73.6
Kansas City	30.0/31.9	30.2/33.6	32.2/37.1	37.3/41.2	42.9/45.9	48.6/51.3	54.9/56.7	59.9/61.7	64.6/66.4	69.4/71.2	74.2/76.0	78.0/79.6	80.0/81.5	80.2/81.8
Los Angeles	52.7/54.0	52.6/54.3	52.9/55.1	54.1/56.3	55.4/57.4	56.6/58.4	58.1/59.7	59.8/61.3	61.4/62.8	62.5/64.0	63.9/65.4	65.4/67.0	66.9/68.4	67.5/68.9
Minneapolis	13.4/16.5	13.3/17.7	15.0/20.8	21.7/25.9	29.9/32.5	37.3/40.3	44.7/47.9	51.3/54.4	57.2/60.2	62.2/64.9	66.6/69.1	70.3/72.5	72.9/74.9	73.2/75.0
New Orleans	52.6/56.0	54.0/54.4	55.9/59.3	57.6/60.8	60.6/63.0	63.4/65.7	67.4/69.1	70.7/72.1	73.8/74.9	77.0/78.1	79.9/80.9	81.0/81.9	81.4/82.3	81.8/82.7
New York	32.0/34.6	30.9/33.6	30.9/33.6	34.1/36.8	38.7/41.3	43.6/46.0	49.0/51.0	54.6/56.3	60.6/62.1	65.9/67.5	70.4/72.2	73.6/75.0	75.2/76.3	75.1/75.5
Philadelphia	31.8/35.0	31.1/34.3	32.3/35.3	36.4/39.2	40.8/43.5	45.6/47.9	50.8/52.6	56.2/58.0	62.3/64.0	67.5/69.2	71.5/73.1	74.1/75.4	75.5/76.6	75.1/76.3
Pittsburgh	26.9/30.1	26.4/30.5	26.9/32.0	30.5/35.4	36.0/40.6	43.3/46.5	48.0/49.8	53.1/55.1	58.7/60.9	63.5/65.8	67.4/69.7	70.2/72.0	71.4/72.8	71.0/72.4
St. Louis	30.1/34.7	31.3/35.7	33.7/38.1	37.8/41.8	42.9/46.3	48.6/51.5	54.5/57.0	58.4/61.9	64.0/66.6	68.7/71.5	73.5/76.2	76.9/79.0	78.7/80.2	78.5/80.1
San Francisco	46.9/49.1	48.3/50.8	50.0/51.7	51.0/52.8	51.7/53.5	52.4/54.2	53.2/55.0	54.3/55.9	55.9/57.4	57.5/59.1	58.8/60.5	59.6/61.0	59.7/60.9	59.5/60.7
Seattle	37.2/38.5	38.2/40.0	39.7/42.0	41.7/43.3	43.6/44.7	45.8/47.2	48.2/49.9	51.0/52.9	54.2/56.3	56.9/58.5	59.3/60.4	61.7/62.7	63.6/64.6	63.8/65.0



Giant New Jaw Crusher Rated to Deliver Over 600 TPH at 13" Setting

Workmen are dwarfed by the 19,000 lb. pitman and 5200 lb. shaft assembly being lowered into place as PIONEER assembles the world's largest overhead eccentric jaw crusher. This 42" x 48" crusher reduces rocks in a 4 cu. yd. crushing chamber at a calculated capacity of over 600 tph with maximum jaw setting of 13". Minimum setting is 4". Length of moving jaw is 104"; stationary jaw, 90". Crusher was designed to reduce drilling and blasting costs.

Welded steel construction of the base allows crusher to be built with a total weight of less than 95,000 lbs. These features are important in preventing excessive maintenance cost: A patented closure between inner and outer bearings which makes it possible to place bearings closer together than on any other anti-friction bearing jaw crusher . . . thus greatly reducing shaft strain. Outer bearings saddle-mounted in the frame on precision-machined parts. Split-reversible jaw plates, cast from tough, alloyed manganese steel, designed to prevent cold flow and peening. Toggle plate safety device protects crusher when non-crushable material enters chamber.

Want the production reports on how this giant crusher can cut operating costs for cement and lime producers? Write now to

Pioneer ENGINEERING WORKS, INC.
Minneapolis 13, Minnesota
(SUBSIDIARY OF POOR & COMPANY, CHICAGO)

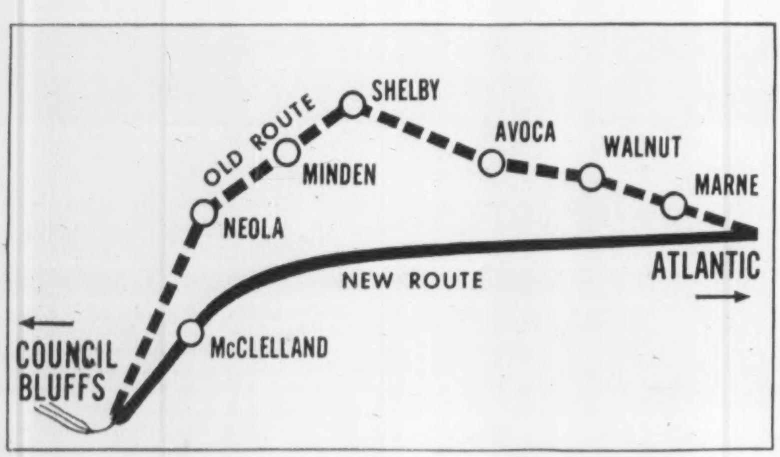
Like all PIONEER jaw crushers, the 42" x 48" has an all-welded steel base of double-wall, box-type construction. Design reduces weight, but strength is substantially greater than is possible with a cast steel base of the same dimensions.

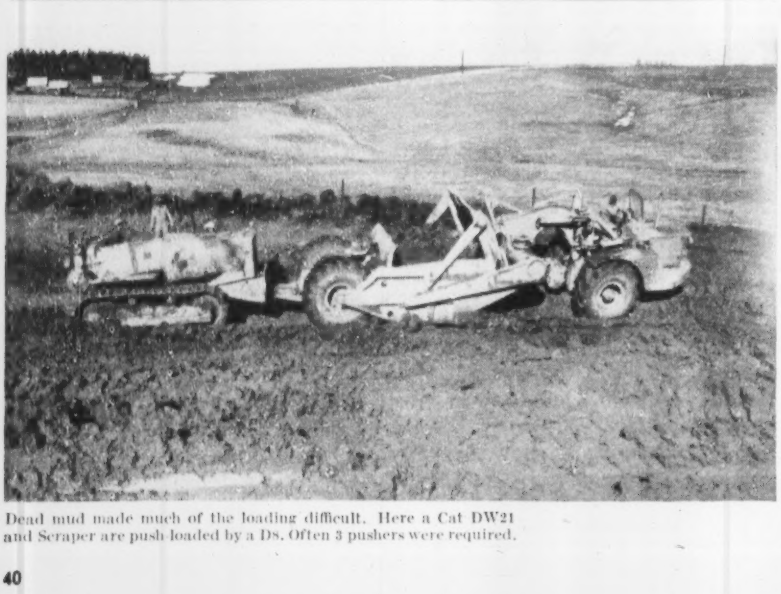
Hydraulic process uses oil pressure to expand inner races of shaft bearings. This permits bearings to slide freely from shaft so that bearing check-up and maintenance become relatively simple. Shaft is 10' long, 14½" in diameter between bearings. Shaft stroke is 1¼".

Ready to go. Giant crusher is ready for shipment to the U. S. Lime Products Corp., Las Vegas, Nevada. Two-unit base permits easy handling by standard equipment.

7,000,000 yards moved on Rock Island's Atlantic cut-off

GENERAL DODGE'S ENGINEERING DREAM BECOMES REALITY AFTER 97 YEARS





Dead mud made much of the loading difficult. Here a Cat DW21 and Scraper are push-loaded by a D8. Often 3 pushers were required.

In September, 1953, the final spike was driven on the Atlantic-Council Bluffs cut-off of the Rock Island Lines. When the original main line to Denver was undertaken, back in 1857, General Granville M. Dodge recommended that it follow the new route. But picks and shovels and horse-drawn scrapers couldn't handle the immense cut-and-fill operation involved. The task had to wait for today's powerful earth-moving machines.

The new line goes directly across the rough, hilly terrain of western Iowa, cutting the distance from 59.38 miles to 49.18, and reducing curves and grades. Cuts up to 70 feet were made through hills to fill the adjacent valleys.

The contract, completed by Orville Eblen Construction Co., of Atlantic, Iowa, called for the moving of 7,000,000 cubic yards of earth. Many of the hills that had to be cut through contained pockets of dead mud, between layers of impervious glacial clay. This made the going tough for normal scraper loading.

The bulk of the material was moved by 17 big-wheeled Caterpillar* units—twelve DW21s and five DW20s with Scrapers. The spread also included seventeen D8 Tractors, two D7s and six No. 12 Motor Graders.

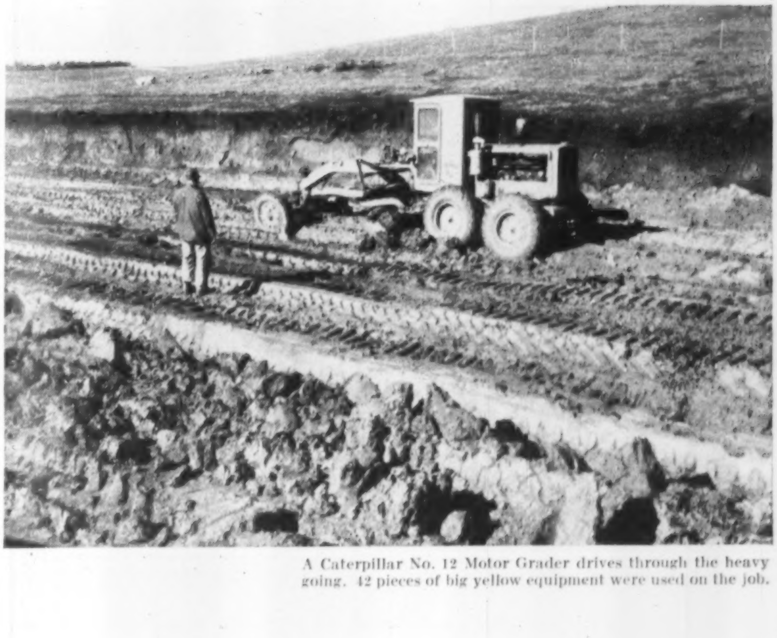
This is typical of the Iowa terrain traversed by the cut-off. Cuts up to 70 feet deep were common.

Mr. Eblen reports: "Both the DW21s and DW20s are well balanced, with adequate power, rugged transmissions, proper-sized rubber and strongly constructed scrapers. Yet at times it took the combined push of three D8s to overcome the tough mud conditions.

"In the face of these difficulties, our Cat* units have averaged over 300 hours of work per month on this job. I think no other machine built could have made such a record on this particular job."

The Atlantic cut-off has been an expensive undertaking, but it should well repay the Rock Island Lines. Faster schedules and lower hauling costs will be of direct benefit to the railroad, to shippers and to the traveling public.

*Both Cat and Caterpillar are registered trademarks—®



A Caterpillar No. 12 Motor Grader drives through the heavy going. 42 pieces of big yellow equipment were used on the job.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS, U.S.A.

Bidding for engineering services

A gratifyingly large amount of comment has been received on an editorial entitled "Bidding for engineering services" published in our issue of Nov. 19, 1953, p 167. Some of that comment is presented here, and more will be published in a later issue.

That editorial recommended that the civil engineering profession remove the stigma of unethical practice from bidding for engineering services, and then promote a procedure reflecting sound business, but still holding to the professional tenet that qualifications outweigh price in obtaining good engineering services.

What stimulated our thinking on that subject was the fact that despite prohibitions against competitive bidding in most codes of ethics for engineers, fifteen engineering firms submitted bids to C. R. McMillan, chief highway commissioner of South Carolina, in response to an advertisement for such bids, which was published in ENR.

Discussion needed

SIR: The Council of the American Institute of Consulting Engineers directed me to write you that our members were puzzled and disturbed by ideas expressed in the editorial entitled "Bidding for Engineering Services".

Having in mind the codes of ethics adopted by practically all national engineering societies, the council believes that this editorial advances views contrary to those generally accepted by American engineers. In fact, the American Institute of Consulting Engineers feels strongly that the recommendations you have made would tend to impair the professional status of engineers.

However, it is to be hoped that the editorial will stimulate discussion of the problem and will lead to the correction of the conditions which led to its publication.

SCOTT TURNER
President,
American Institute of Consulting Engineers
New York, N. Y.

Lower quality would result

SIR: I am sure that the editorial in the Engineering News-Record, Nov. 19, 1953, "Bidding for Engineering Services," will have considerable attention. The conclusions in your editorial are surprising in view of the preponderance of acceptance of the opposite conclusions by the professional societies.

Certainly the profession will be delinquent if your conclusion is accepted unchallenged. It is shocking to many of us that outright breach of professional ethics can be practiced on so large a scale, and disturbing that the practice can be condoned at so high a level.

The simple facts in the South Carolina case are that bids were received competitively on professional services, that the bids varied from less than three percent to more than seven percent, and that 15 reputable engineering firms participated.

Everyone knows that the cost of engineering services does not vary to the extent indicated by the bids. The only possible answer is that the amount of service that each firm intended to provide varied over a wide range. The firm bidding 2.9 percent certainly does not intend to provide the services of the same number of engineers, at the same salaries, for the same length of time, and with the same supervision as was intended by the firm estimating a cost over seven percent.

The real fault with what happened in South Carolina was that 15 engineering firms were permitted to submit proposals on 15 different interpretations of the quantity of service to be performed. To say that "quality" can be a consideration in such a bidding procedure is farfetched. Assuming that all the firms were ethical in representing themselves as competent to do the work, quality becomes synonomous with quantity, and the highest quality should be assumed to go along with the highest fee. If the purpose of bidding were to select the highest bidder there might be some "quality" argument in the picture. It is obvious that the purpose was to find the lowest bidder.

Isn't it possible that cutthroat bidding on professional services can be a matter of ethics? Acceptance of low levels of quantity can lead eventually to low levels of quality, lowered engineering salaries, lesser overhead supervision, and general deterioration of the profession. Engineers have been attempting to standardize minimum engineering fees for the purpose of establishing minimum standards of living for engineers and maintaining minimum standards of quality. If the engineering profession had accomplished its objective, the state of South Carolina would have received 15 proposals to do the same amount of work for the same fee. Each could then have provided the same service with the same standard of living for its employes. The state could then have selected the most conveniently located firm that could meet the required schedule.

Manual No. 29 of the American Society of Civil Engineers published in 1952 and reprinted in 1953 contains an attempt on the part of the civil engineering profession to establish a basis for minimum fees. The bascule bridge that was involved in this case is covered by Curve A, which for a cost of $700,000 provides a fee of 6.05 percent. It is unfortunate that an estimated cost was not supplied by the client and the services not to be performed by the engineer were not clearly defined. A fee of less than three percent is obviously not within any definition of the quantity of work anticipated by this manual.

It might be interesting to consider what would happen if the following advertisement were submitted to the Journal of the American Medical Association:

NOTICE TO SURGEONS: Bids will be received on Jan. 15, 1954, for medical services in connection with the removal of an appendix. Details may be obtained from the undersigned. John C. Appleseed, Box 35, Route 7, Barnhill, S. C.

Probably, if the Journal accepted the ad, and if surgeons submitted proposals, and if the fee varied, the only reason would be because of a definition of the service to be performed. The only exception would possibly be that a person of outstanding reputation would submit a fee above the minimum. It would be surprising if any bids were less than the accepted minimum fees.

Let's consider the question of the ethics of bidding for professional services on the basis of minimum service.

C. D. WILLIAMS
North Augusta, S. C.

Who would sit in judgment?

SIR: Allow me to congratulate you on your editorial entitled "Bidding for Engineering Services." The following quotation from that editorial appears to be especially apt and very much to the point:

"Our experience suggests that all these societies [ASCE and others] are merely tilting at windmills, and that the sooner the stigma of unethical conduct is removed from the practice of bidding for engineering services the better."

I am sure of nothing. However, I

am fairly confident that, if the ASCE expelled all of their members who have indulged in the practice of bidding on a price basis, in one form or another, they would have few members left. An interesting question for speculation is: Who would be competent to sit on a "Sanhedrim" and expel a fellow member on such a charge?

Oliver G. Julian
Wellesley Hills, Mass.

Can't sidestep a basic issue

Sir: Your statement that "the sooner the stigma of unethical conduct is removed from the practice of bidding for engineering services the better" is sure to add to the difficulty of maintaining the professional status of engineering. There are many engineers in practice who do not bid for engineering engagements on a price basis because they believe that the engineering services required to obtain the best answer to an engineering problem at least overall cost to the client cannot be obtained at a low price.

Since the objective of any reputable engineer should be to obtain the solution at the least overall cost to his client, any procedure which would help thwart this objective is unethical.

The practice of bidding for engineer engagements on a price basis became so widespread immediately following World War II that many engineering societies felt compelled to do something about the problem. Your editorial refers to the action taken by the American Society of Civil Engineers in 1949 whereby its code of ethics was amended to include a prohibition against competitive bidding on a price basis. During the same year the Boston Society of Civil Engineers issued a brochure entitled "Recommended Procedure for Securing Professional Engineering Services by Public Authorities". This brochure describes the evils of competitive bidding and a procedure by which bidding may be avoided.

In 1952 the BSCE submitted the following resolution to a vote of its membership by letter ballot:

"Resolved: that it is unethical for an engineer knowingly to compete for services to clients on the basis of price". Of the 290 ballots received, 266 were in favor of adopting the resolution and 22 were opposed.

It is true, as brought out in your editorial, that many public agencies interpret the law as requiring the receipt of price bids prior to the award of a contract for engineering services. An undesirable feature of most of these laws is that the purchasing agent is required to award a contract to the "lowest responsible bidder". An awarding agency which wishes to award to other than the lowest bidder on the basis of merit must, under this provision, be in a position to prove that all lower bidders are not responsible. Thus, in most cases it is mandatory to award to the low bidder in order to avoid damage suits.

You state in your editorial that "with all of the qualifications and proposals made public and with the schedule of minimum fees established by the profession as a guide, the public official could award the contract to the lowest qualified bidder which is his objective no matter what procedure is followed." On this I wholly disagree. It is the basis of your misunderstanding of the problem. The objective of the public official should not be to award the contract to the lowest qualified bidder, but rather to secure an engineer who will give him the best solution of the problem at the least overall cost. Moreover, as pointed out above, the public official cannot safely make an award to any but the low bidder whether or not the low bidder actually is qualified.

Your editorial states that "the procedure which is accepted to accord with the code provision prohibiting bidding is for the prospective buyer to interview a number of invited engineers personally, receive their proposals and weigh their qualifications. But, in contrast to this relatively confidential procedure, the tendering of sealed bids to be opened and compared is frowned upon". You imply that the former procedure naturally includes a discussion of the fees to be charged by each of the engineers invited. This obviously cannot be the case since the two procedures would be identical in substance. You are referred to the BSCE brochure quoted above for a proper description of the accepted procedure.

Your editorial states that "It may readily be conceded that it would be unwise for a buyer to accept the lowest price regardless of other considerations and unwise too for an engineer to bid low in an attempt to get a job for which he has neither the qualifications nor the facilities". Unwise or not the practice is very widespread with public agencies. The "punishment is inherent in the form of an inferior product for the buyer", but the buyer is usually not aware of the inferior product because only the engineer has full access to all the facts. Even in cases of consistent glaring failures, the "tarnished reputation for the engineer" does not seem to interfere too greatly with his continuing in business with public agencies.

If engineering is to remain a profession in the eyes of the public, it is up to the engineers themselves, by their own acts, to inspire the confidence of the public in the capacity of engineers for leadership in engineering matters. We must put our own house in order. We cannot maintain professional status if we avoid the problem of competitive bidding merely because it is difficult.

Thomas R. Camp, *Partner*
Camp, Dresser & McKee
Consulting Engineers
Boston, Mass.

Profession or business?

Sir: Your editorial must be exercising the minds of many civil engineers. I appreciate the frank discussion of the problem so much that I venture to suggest that it fails to deal with the basic question upon which all other aspects of the problem depend.

If civil engineering is to be regarded as a profession, then there surely can be no question that bidding for engineering services cannot be condoned. If, on the other hand, we are to accept the fact that civil engineering is a business and not a profession, then the sooner that bidding for services is put on a regular basis the better.

To my mind the expression "bidding for professional services" is a contradiction in itself. Your own use of the alternative title suggests that you share this view. My comments will show clearly that I am one of those who continue to regard engineering as an ancient and honorable profession and it is for this reason that I appreciate the action which promoted your editorial and similar efforts to halt the commercialization of practice within the profession.

Robert F. Legget,
Ottawa, Ont.

Purpose of a code missed

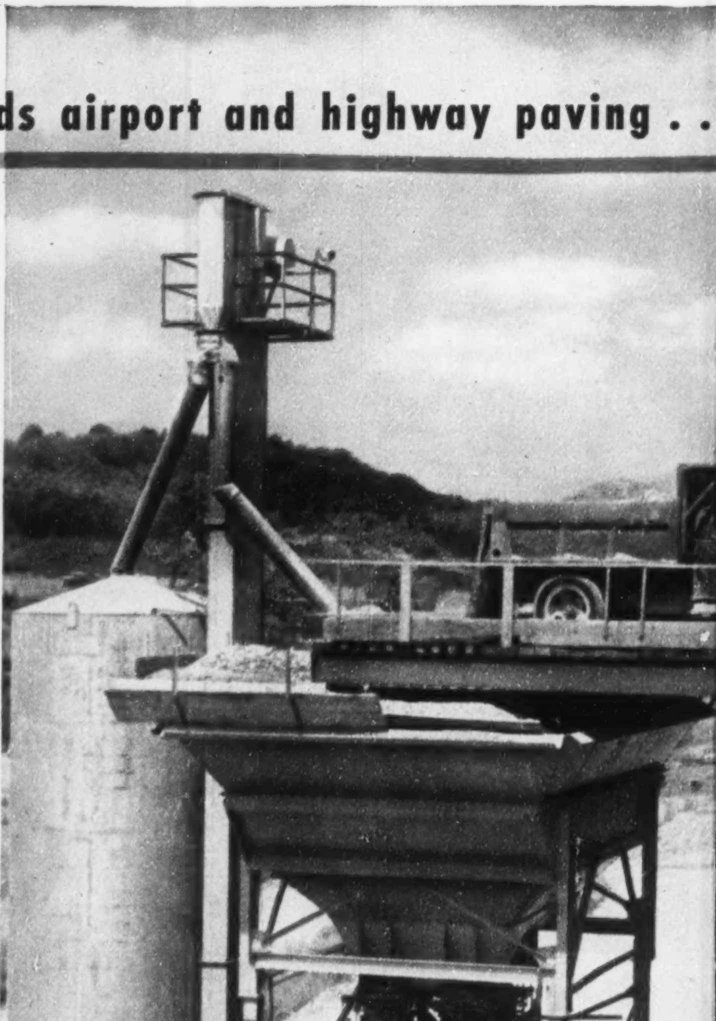
Sir: Your editorial misses the whole purpose of a code of ethics. Protecting the interests of the client is the main and only sound basis for developing and adopting ethical principles.

Ethical principles are developed as a result of the progress of society toward the mutual benefit of all parties to a transaction. Both local and national laws are constantly being revised to improve their functioning and approach a sounder basis for regulating our society. Therefore, it would be ridiculous to conclude that a code of ethics should be revised because it fails to conform with some local law which is in conflict with the necessary basic principles of relationships between professional men and their clients.

(Continued on page 46)

21-SECOND batch time

speeds airport and highway paving . .



Johnson Automatic Batch Plants, like the one shown here, accurately weigh out aggregates and cement ahead of heaviest paving schedules on highways, airports, and other large-volume concrete jobs. For example:

Keeps two 34-E pavers busy . . . One plant, with one batcher operator, easily supplies enough materials to keep two 34-E pavers busy full time. A 1¼-cu. yd. batch is weighed up, and discharged into truck, in as little as 21 seconds. One-stop charging of batch trucks speeds production. (Plant also can be arranged for two-stop charging.)

Automatic control maintains high plant output all day . . . assures pin-point weighing accuracy of every batch. A separate, fully-automatic weigh-batcher is used for each of the aggregates, and for the cement. All materials weigh up at the same time for greatest speed. These single-material Johnson batchers operate on electro-pneumatic control . . . fill valves and discharge gates are automatic air-ram operated.

Multiple batch selections . . . For roadbuilder's use, dial scale with electric cut-off switch is usually used. When more than one batch size is required, single material batchers can be equipped with mix selector for 12 different mixes . . . all controlled from central operator's station. (Each of the single-material aggregate batchers can be equipped with a moisture compensating lever which automatically gives a dry weight of material being weighed.) Up to 120 mix selections are available on large Johnson batch plants for dams, and commercial ready-mix installations.

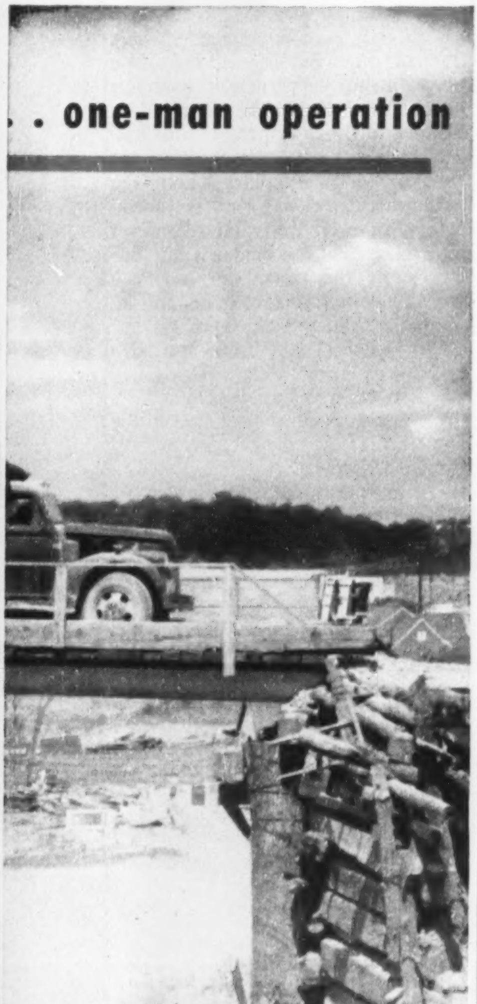
Investigate the possibilities of increasing concrete production on your operations with one of these Johnson Automatic Batch Plants. In many instances this equipment can be added to an existing plant. For complete details, contact your Johnson distributor, or write to us.

C. S. JOHNSON COMPANY
CHAMPAIGN, ILL. • *(Koehring Subsidiary)*

JOHNSON *automatic* BATCH PLANTS

CJ414

. . one-man operation



Main units in this Johnson Automatic Batch Plant consist of: 150-cu. yd. square bin, with 3 aggregate compartments, and a 150-bbl. central cement compartment. Three 2000-lb. automatic single-material aggregate batchers . . . one 1000-lb. automatic cement batcher. Truck-receiving hopper, bucket elevator and 757-bbl. aerated silo for cement. Hillside ramp permits convenient truck delivery of aggregates to top of bin.

BINS • BATCHERS • HOPPERS
SILOS • ELEVATORS • CHARGERS
CLAMSHELL, CONCRETE-BUCKETS

14½-ft.-per-min. Parsons Trenchmobile

Rubber-tired Trenchmobile drives job-to-job at 12.6 m.p.h. . . . digs 8 to 16 in. wide, 5 ft. deep, up to 14½ ft. per min. Sloping ladder boom makes vertical set-ins, undercuts sidewalks, curbs, old mains. Other features: hinged crumber, "Tap-In" digging teeth, reversible conveyor, optional backfill blade. Also ask your Parsons distributor about the 2 wheel-type and 3 ladder-type Trenchliners® . . . all full crawler mounted.

PARSONS • Newton, Iowa
(Koehring Subsidiary)

Kwik-Mix Moto-Bug® has ¾-ton capacity

Moto-Bug power wheelbarrow hauls 10 cu. ft. (or 1500 lbs.) of any bulk materials. Has instant gravity-dump, with snub-line control. Climbs 20% ramps or grades. There's full power forward and reverse . . . and safe, automatic brake control. Hopper is interchangeable with 1500-lb. platform, or ½-ton (5-ft.) fork lift. Send for Moto-Bug bulletin. Also check Kwik-Mix line of concrete mixers, bituminous and plaster-mortar mixers.

KWIK-MIX • Milwaukee, Wis.
(Koehring Subsidiary)

Save turn-time with Koehring Dumptor®

Fast-shuttling Koehring Dumptor® eliminates slow turns at loader, on narrow haul roads, and at the dumping location. With constant-mesh transmission, Dumptor travels same speeds forward and reverse . . . gets its load, drives to fill, dumps and returns to loading unit without turning. Eliminating only 2 turns saves ½ minute on every cycle. Instant gravity dump cuts another 15 to 25 seconds off haul cycles with heavy-duty Dumptors.

KOEHRING Company
Milwaukee 16, Wis.

Z66

. . . Bidding for engineering services

(*Continued from page 43*)

It has been implied that a bad design would be evident and thereby would reflect upon the engineer as well as be obvious to the owner of the completed structure. This must be denied on the basis that any engineering firm can turn out very quickly and cheaply a design which will be safe. The essence of professional service is the attempt on the part of the engineering firm to study the needs of the project and of the owner and to consider many alternate and often opposing factors and variations in design concepts so that the most economical and serviceable end results may be obtained. This cannot be humanly expected when the presence of price competition on the design fee is involved.

Pertinent experience in this matter is available from the recent experiments of the Army Engineers in soliciting alternate designs on some of their projects. In these cases, the USED would prepare plans for a particular project and then request alternate bids for construction based upon the basic design and on modifications in the design. As should be suspected and would be true in any design, it was possible to make changes which would cheapen the construction costs.

However, in almost every case the USED was forced to decide upon the basis of their engineering judgment that the alternate designs were not equivalent and therefore were not acceptable. In these cases, in spite of possible cheaper construction costs, the designs as originally prepared were employed. It does not take very deep consideration of these problems to conclude that it would have been possible to turn out a much cheaper set of design drawings which might well have resulted in much higher construction costs. Another case was experienced recently wherein a school board saved two percent in the design fee on a project and in the construction contract has experienced some 25 percent higher construction costs than for comparable structures in the same vicinity. It could hardly be argued that the two percent saving in the design fee is a sound investment with that end result.

If bids are received from a list of firms who are admitted to be qualified, it will be practically impossible to accept any but the lowest bid. A public official accepting other than the lowest bid would be subject to pressure of public criticism and even to possible lawsuit by a rejected bidder.

Thoughtful consideration of the factors which enter into the conceiving and executing of engineering designs can only lead to the conclusion that comparing design fees is impracticable and wrong. Unfortunately, there is no assurance that paying either the lowest or the highest of the fees would result in the least costly and most useful final structure.

The United States Department of Defense has adopted policies governing selection of architects and engineers which contains the following statement:

> Selection of architect-engineers "will not be based upon competitive bidding." This is a fundamental principle established after months of debate and conferences within the Department of Defense and within the Munitions Board and with Army, Navy, and Air Force representatives.

It is, also, pertinent to quote the opinion stated by the Supreme Court of the State of California in a case concerning bidding for professional services in California. A portion of its opinion is quoted as follows:

> Advertising might bring many bids, but it is beyond peradventure that the lowest bidder might be the least capable and most inexperienced, and absolutely unacceptable.
>
> * * * * *
>
> The employment of a person who is highly and technically skilled in his science or profession is one which may properly be made without competitive bidding.

If the pressure of competitive prices is allowed to be a factor in selecting professional design and engineering services, the clients will assuredly pay for more costly and less useful structures than they have a right to expect from the competent professional practice of engineering.

Consulting Engineers Association
of California
William W. Moore, Vice-President
San Francisco, Calif.

Should reconsider stand

Sir: There is no question but this problem presents a serious challenge to at least a portion of the civil engineering profession.

The cardinal sin of this generation appears to be that of expediency. If practice does not coincide with moral standards, then scrap the standards; never should we sacrifice our material gains for the sake of principle. We ask the public to accept civil engineering as a profession, but we are unwilling to pay the price of acting like professionals.

To my mind the fallacy in your editorial is that you fail to consider where the practice of bidding will lead. We write in our construction contracts for public work that the work will be awarded to the lowest responsible bidder. In theory the contract would not be awarded to a bidder whom the owner might feel was careless, incompetent, or even dishonest. However in practice if such a bidder is the lowest, wants the work, can obtain a satisfactory performance bond, and indicates a willingness to fight for the award in court, then unless the owner has evidence which he feels will stand in court, he quite often dares not refuse to award the contract to the low bidder.

The action that could have been taken in this case to satisfy the law and without violating professional ethics would have been to word the advertisement to the following effect:

> Sealed proposals are invited for engineering services in connection with . . . Proposals shall contain a detailed statement of the engineers' qualifications, a detailed statement of the services to be rendered, and the fee proposed. Proposals will be evaluated on the basis of qualifications and services proposed in addition to the amount of the proposed fee. The engineers submitting the three most favorable proposals will be invited to appear before the Commissioner to discuss their proposals.

The ASCE and other interested parties should bring pressure on the South Carolina legislators and other policy-making agencies to change the law or its interpretation to agree with sound ethical principles.

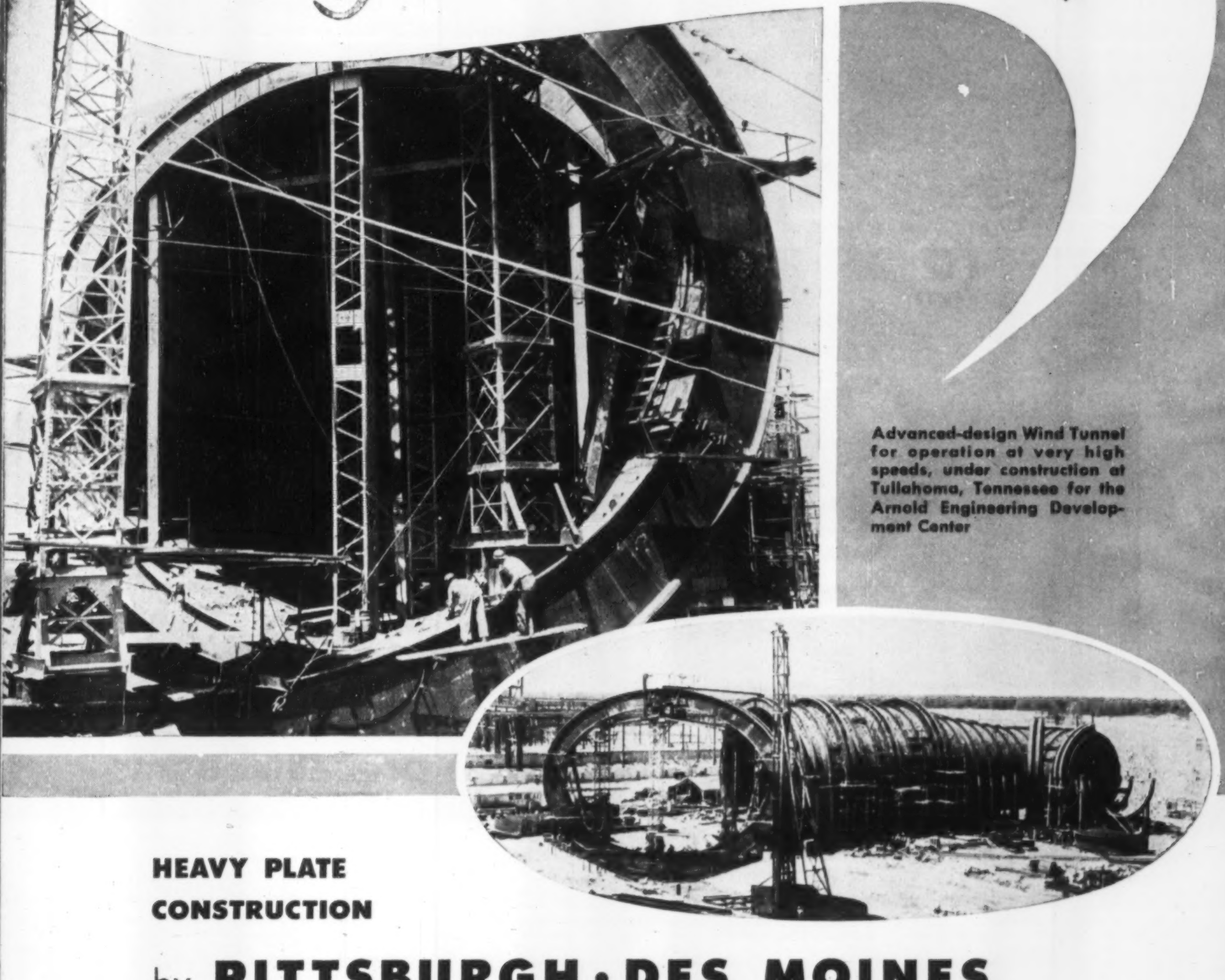
The Boston Society of Civil Engineers faced this situation in New England several years ago and after careful study concluded that in general the laws were not so often at fault as was their interpretation. The society engaged in an educational program to show municipal authorities that a consideration for the ethical position of consulting engineers was in the best interests of the public. This program while not attaining perfection, I believe did much to improve the local situation and bidding does not appear to be a serious problem here today.

I sincerely hope that you will reconsider your editorial and will return to your support of that portion of the code of ethics which stands against bidding for professional engagements, remembering that the code is the basis for true professional conduct. To continue your present ideas will be a great disservice to professional engineers.

Edwin B. Cobb
Metcalf & Eddy, Engineers,
Boston, Mass.

MAKING READY FOR A

Big Wind in Tullahoma



Advanced-design Wind Tunnel for operation at very high speeds, under construction at Tullahoma, Tennessee for the Arnold Engineering Development Center

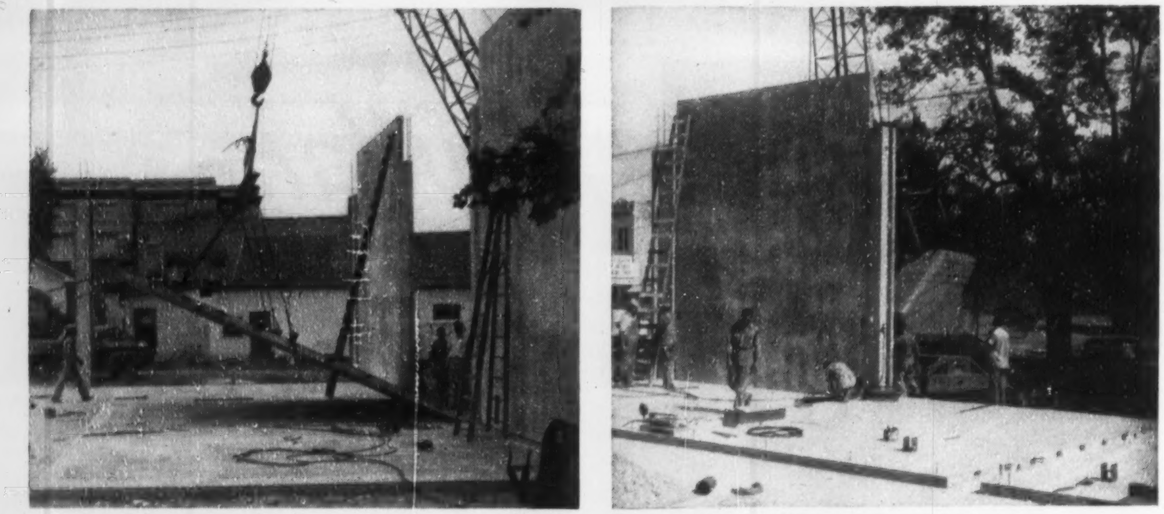
HEAVY PLATE CONSTRUCTION

by PITTSBURGH • DES MOINES

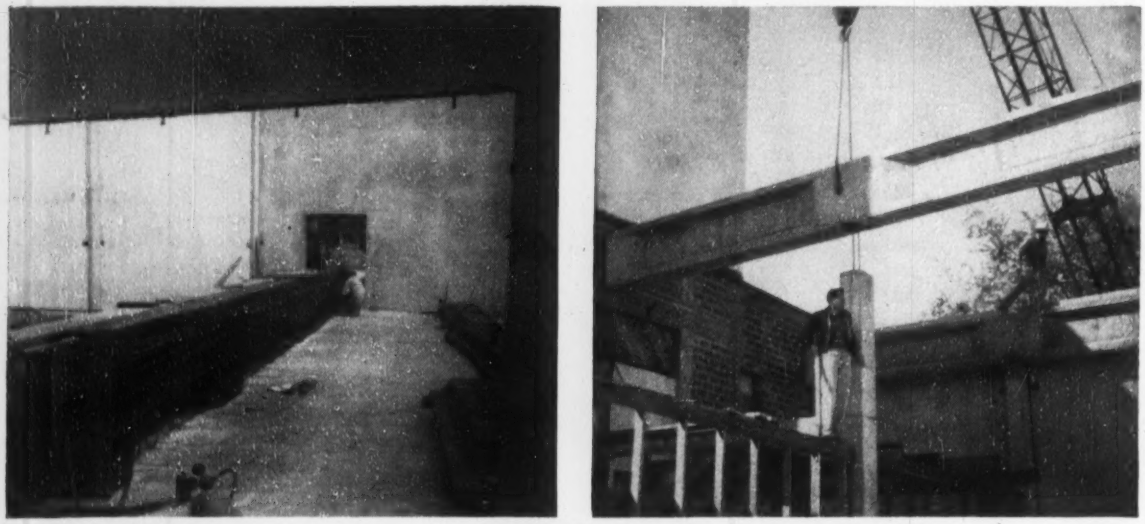
Latest of the many great Wind Tunnels built by Pittsburgh-Des Moines, the Tullahoma structure employs welded plates ranging from one inch to six inches in thickness—calling upon the high degree of craftsmanship in intricate, heavy construction for which P-DM is noted. ● *May we discuss your plate construction requirements, regardless of size?*

PITTSBURGH • DES MOINES STEEL CO.
Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:
PITTSBURGH (25) . . . . . 3414 Neville Island
NEWARK (2) . . . 216 Industrial Office Bldg.
CHICAGO (3), 1218 First National Bank Bldg.
LOS ANGELES (48), ... 6399 Wilshire Blvd.
DES MOINES (8), 915 Tuttle Street
DALLAS (1), 1219 Praetorian Bldg.
SEATTLE . . . . 522 Lane Street
SANTA CLARA, CAL., 621 Alviso Road



WALL PANELS, precast and prestressed on the building floor, were tilted up and tied to cast-in-place columns.



BEAMS, TOO, were precast and prestressed on the floor slab. Then, cranes seated them on the columns.

Prestress both tilt-up walls and precast beams

A combination of precasting and prestressing used in the erection of a new addition to the Baylor University Theater in Waco, Tex., suggests the possibility of wider application of prestressed concrete to building construction. Not only were the precast concrete roof beams of the one-story structure prestressed, but so were the tilt-up concrete walls.

The designers had two reasons for prestressing the wall panels:

1. To reduce the danger of cracking during erection, thus allowing the contractor to handle the panels with a minimum of effort.
2. To eliminate shrinkage cracks in the concrete after erection of the wall.

Though the prestressed walls for the theater addition offered these advantages, the contractor reports they cost the same as conventional precast, reinforced concrete panels.

• How the walls were built—The prestressed panels are 21 ft high, 24 ft wide and 5 in. thick. A typical unit weighs 16 tons.

Made of 3,500-psi concrete, the panels were cast on the building floor, later tilted into place with a crane. Before being erected, they were given a light prestress in two directions. A precompression of 100 psi was applied in the vertical direction, and 75 psi laterally.

This was accomplished with 4-wire cables spaced at 3-ft intervals at mid-depth of each wall slab. Greased and wrapped with plastic to prevent bond with the concrete, the steel was tensioned to 132,000 psi with a jack acting against the hardened concrete of the panel. Then, the wires were anchored along the edges of the wall.

For these purposes, two heads were pressed on the end of each of the ¼-in. dia wires that form a cable. One head was gripped by the jack in applying the tension; the other was used for anchoring the wires. (This method was developed by Prestressing, Inc., of San Antonio, Tex.)

The exposed anchorage hardware on the top edge of the panel was covered with grout before the panel was erected. The hardware on the other edge was grouted when the wall-to-column connection was made.

The columns are T-sections of conventional cast-in-place reinforced concrete construction. When a wall was tilted up and seated on ½-in. expansion material, it was set against the column flange, filling the space between webs of successive columns. Wall dowels, exposed in recesses in the panel, then were welded to column dowels to anchor the walls. Finally, the recesses were grouted.

• **How the beams were made**—The nine prestressed roof beams for this building are I-sections, furnished in two lengths—three 65 ft long, the remainder, 25 ft. The shorter beams are 17-in. deep, while the longer are 34-in. deep, designed to span 50 ft between columns and cantilever 15 ft beyond. Cantilevering eliminated the need for columns where the theatre addition abutted the existing building.

Made of 5,000-psi concrete, the beams were prestressed after they had attained sufficient strength. For this purpose, prestressing cables were slipped through ducts in the beams that had been formed with rubber hose, and the wires were tensioned to 132,000 psi with jacks acting against the ends of the beams. Like the steel used for the walls, these ¼-in. dia wires also had double heads on the ends for jacking and anchorage. After the cables were anchored, the ducts were filled with grout to establish bond between the wires and the beam concrete.

The 65-ft beams were prestressed with five 8-wire cables. These were draped in a vertical plane in accordance with bending-moment distribution, which required that the steel be given reverse curvature because of the cantilever.

Weighing 9 tons apiece, the long beams were seated on top of the columns with two cranes. At the simple-beam end, they were attached to the columns by welding two horizontal dowels projecting from the beams to vertical dowels from the columns. The connection later was encased in concrete. Where the beams are continuous over the columns, two vertical dowels projecting from the top of each column were passed through holes in the beam and grouted in.

Channel-shape reinforced concrete roof deck was erected next, to span 20 ft between beams. These panels were tied together by welding bars projecting from the ends of adjacent units. Then, grout was placed to fill the spaces between the units. Finally, built-up roofing and rigid insulation were added to complete the enclosure.

The entire superstructure of the 9,800-sq ft, L-shape building was completed in 21 working days. Beams, roof deck and wall panels were erected in only two days.

Colley, Ford and Tamminga, of Houston, Tex., are the architects. Braselton Construction Co., of Corpus Christi, is the general contractor. Prestressing work was carried out by Texas Stressed Concrete Corp., of Austin, with T. J. Gut, as general manager.

STOP
RUST!
with
176
RUST-OLEUM
RUST PREVENTIVE
STOPS RUST!
769 DAMP-PROOF RED
RUST-OLEUM CORPORATION

Protect your unsheltered equipment

RUST-OLEUM

May be applied directly over rusted surfaces

Your unsheltered equipment takes one of the toughest possible beatings from rain, snow, sleet, hail, fumes, heat, etc! RUST-OLEUM's tough, elastic, rust-resistant coating protects your draglines, tractors, dump trucks, road machinery—bridges, culverts and every rustable metal surface. Just scrape and wire-brush to remove rust scale, loose particles, as well as dust, grease, and oil. Then apply RUST-OLEUM by brush, dip, or spray directly over remaining rust.

In Aluminum, White and All Colors, many of which match leading manufacturer's colors

RUST-OLEUM not only protects — it also keeps your equipment looking in top shape thanks to RUST-OLEUM's wide color selection! Don't wait—the weather won't! Write for complete literature, today.

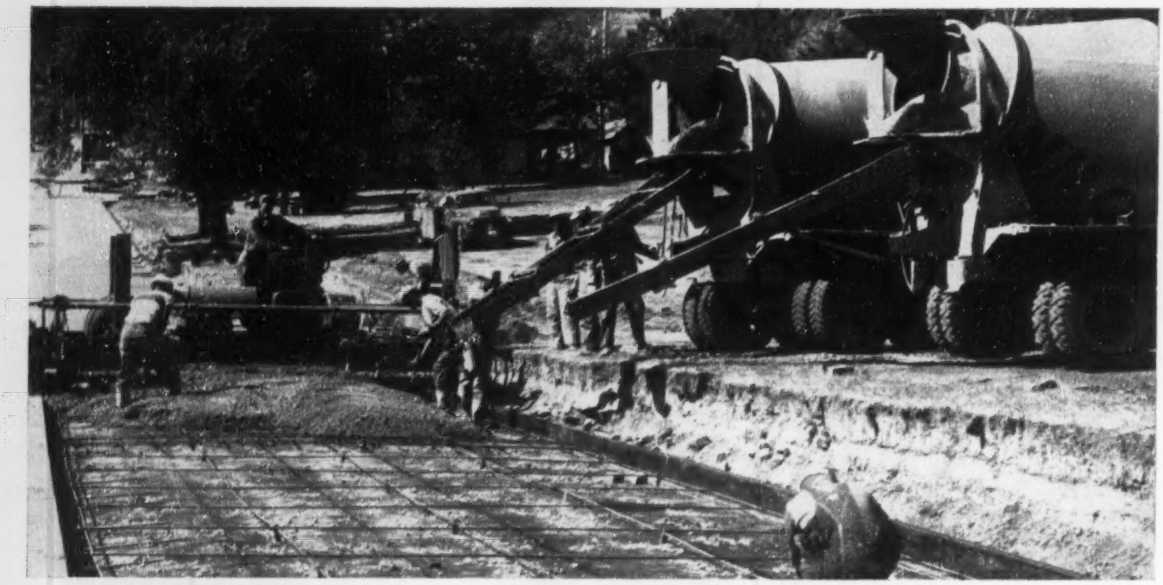
RUST-OLEUM CORPORATION
2693 Oakton Street • Evanston, Illinois

GET THE FACTS

Mail this Coupon Today!

CLIP THIS TO YOUR LETTERHEAD
MAIL TO: RUST-OLEUM CORPORATION
2693 Oakton Street • Evanston, Illinois

☐ Please Send RUST-OLEUM Catalog
☐ Have Qualified Representative Call to Give Specialized Information
☐ Send Free Sample Can of RUST-OLEUM in the Following Finish or Color

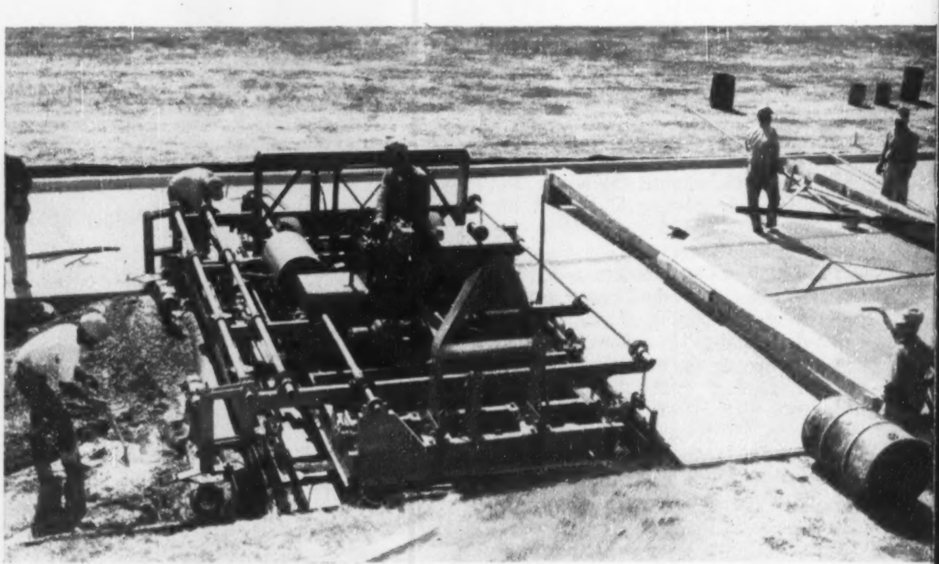


UNMATCHED ECONOMY —
Action here is typical of the small capital investment required, even for major concrete projects. Flex-Plane's amazing Detroit Special eats up the yardage, even while putting in integral curb. Note in particular the small working crew.

SEE THIS: *leading midwestern contractor boils down paving spread to one machine minimum crew for all work*

A large midwestern contractor recently took a trip across his state to see a "Detroit Special" Finishing Machine in operation on a state highway job. As he was watching, the machine finished one section of paving, moved 16 blocks away and began finishing off another section. The time required for the entire move was less than 25 minutes. The contractor placed his order for a machine before he left the job site.

This is not an unusual occurrence but, rather, the general thing. It's difficult to impress a contractor with words . . . he wants to see it in action. And when he sees the Detroit Special's amazing mobility, its flexibility, its extreme adjustability,



EXCLUSIVE!
Custom - built telescopic width adjustment in three-inch increments from 15½-25 ft. The ready-widening and the instant portability — exclusive with Detroit Special — mean this contractor can take on any job in his area right now.

FINEST FINISH is possible because the Detroit Special is designed to "micro-screed." Extra-wide screed bottoms guarantee at least 12% more finishing action per square yard. Rugged design of machine eliminates sway. Note clutch for independently engaging rear screed — another Flex-Plane feature.

and the way it levels and finishes a pour in true workmanlike fashion, it requires very little selling to close the order.

In fact, the contractor here quickly discovered the Detroit Special made it possible to eliminate all other mechanical equipment and reduce his labor force to a bare minimum on municipal paving work without sacrificing quality or speed.

The Detroit Special is the most versatile Finishing Machine ever made. A built-in hydraulic transportation rig transforms it into its own trailer in a matter of seconds. There are no expensive crane handling, no time consuming attachments; just the flick of a hydraulic lever. Consequently, there is a minimum of crew "downtime."

Flex-Plane builds the Detroit Special to your specifications. It is completely telescopic . . . no sections to be added or taken away . . . and it can be adjusted for whatever paving widths specified. For example, **two** of the more popular telescopic width adjustments have been from 10 ft.-20 ft. in 3" increments; and from 20 to 32 feet in 3" increments.

But why not get the entire story? Write for the new Detroit Special Booklet — a handbook of modern finishing methods. It's yours for the asking.

PORTABILITY PLUS no crane handling or truck carting. Simply back a batch truck into position, press a button and it's ready to roll to or from the job. It will lift itself on and off the forms.

THE FLEXIBLE ROAD JOINT MACHINE CO.

Warren, Ohio

Please send additional data on the Detroit Special Finishing Machine.

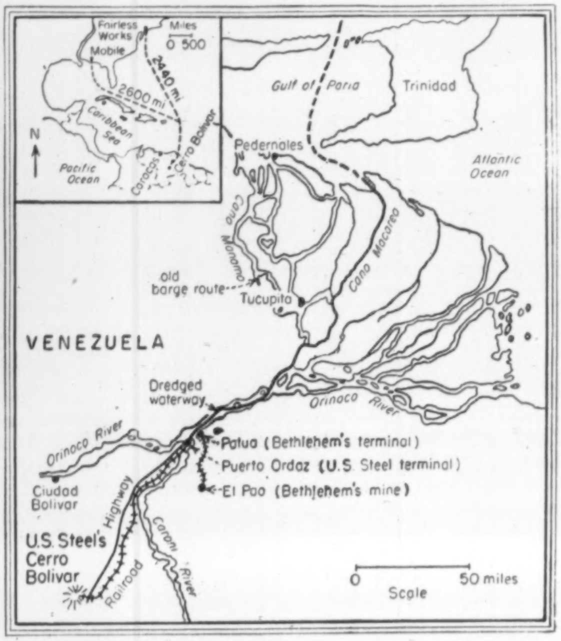
Name ____________________

Company ____________________

Address ____________________

City ____________________ State ________

CERRO BOLIVAR, a mountain of iron ore in Venezuela's Orinoco River valley eventually will disappear in rail cars descending this line to a new ship-loading terminal.



VIA THIS ROUTE, over rail, river and ocean, ore will travel to U. S. Steel's Fairless Works' blast furnaces from its Cerro Bolivar mine. Bethlehem's two-year old mine is nearby.

Moving a mountain from Venezuela to the U. S.

A construction investment already reaching upward toward half a billion dollars began to pay off Jan. 20 when the first shipload of Venezuelan ore from U. S. Steel's famous iron mountain (Cerro Bolivar) in the Orinoco River Valley arrived at the company's new Fairless Works on the Delaware River at Morrisville, Pa.

Here's what has been done in the last five years to make this event possible: Construction of the 1,800,000 ton a year blast furnace-open hearth-rolling mill setup of the Fairless Works itself; a complete alteration of a 100-sq mi rural area of Bucks County, Pennsylvania, with new roads, utilities and 25,000 housing units; dredging of 33 million cu yd of material in the Orinoco River and one of its many mouths, the Macareo, to provide a channel 178 miles long, 250 to 400 ft wide and 26 ft deep; building an ore loading terminal and a village at Puerto Ordaz on the Orinoco; constructing a 90-mile railway on an 80-mile highway from Puerto Ordaz to the ore mine; building a village near the mine and hewing out roads up the cerro, or hill, over which the huge units of construction machinery to be used in the mining operations could be brought in.

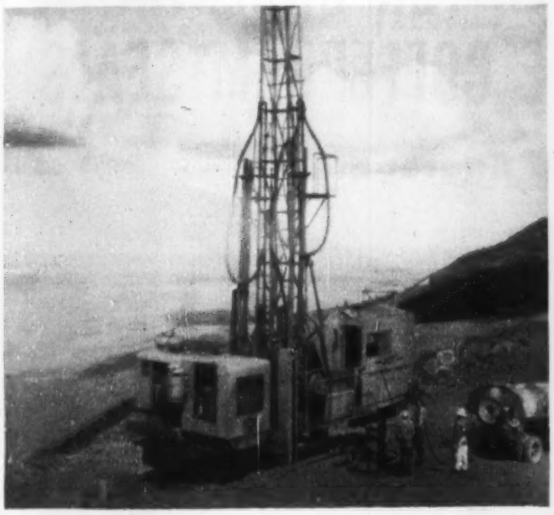
To these vast construction operations of the U. S. Steel Corp should also be added an 850-ft long, 2400-ton-per-hr ore unloading pier built by the Pennsylvania R.R. on the Delaware River in South Philadelphia. Some of the deep draft ore boats from Venezuela will unload there, with others being landed at the Reading R.R. pier in Philadelphia until the Delaware River is deepened to the Fairless Works and nearby Trenton, another 33-million cu yd job. This project at present is being urged on Congress with, so far, uncertain results. Smaller ore boats such as this first one which brought only 8,000 tons of ore, can negotiate the river and unload directly to the blast furnace stock piles at the Fairless Works.

The lodestone of all of the construction in Venezuela is a virtual mountain of iron ore, the highest of a string of hills that rises abruptly from the level plain, or savannah, of the Orinoco River. Cerro Bolivar, as it has been named, is 6 miles long, 1,800 ft high and about a mile wide at its base. The proved ore body, resting right on top of the hill, with no overburden, is 4 miles long, 4,000 ft wide and has an average thickness of 230 ft. It is estimated to contain 500 million tons of ore with an iron content of 63.5%.

Cerro Bolivar will be mined at the rate of 2 million tons a year to start with, increasing as necessary to the 10-million-ton annual rate for which the installed facilities were designed. Easily drilled and blasted, the ore will be removed in 35 to 50-ft layers, from the top of the hill downward, by 6-and 8-yd shovels loading into 20-ton trucks. These trucks will dump onto two loading platforms about half a mile distant and halfway down the mountain from which the ore will be chuted into the 100-ton ore cars and moved to Puerto Ordaz in 93-car trains. Two such trainloads daily will represent about a 5-million-ton a year output.

Many special facilities, devices and construction methods of note were required to make this Venezuelan end of U. S. Steel's operation work. For example, because loaded trucks and rail cars move down grade they must be equipped with unusually effective braking. The trucks are powered with 300-hp engines and provided with hydraulic retarders. On the rail cars the usual air brakes are supplemented with an additional air line so that the reservoirs can be charged at the same time that the brakes are being applied.

Another novelty is the provision of



1. **ORE IS DRILLED** easily with 7-in. rigs like this one, and then blasted to shatter it for mining.

2. **ORE IS MINED** with big shovels and loaded into 20-ton trucks for transfer to railroad.

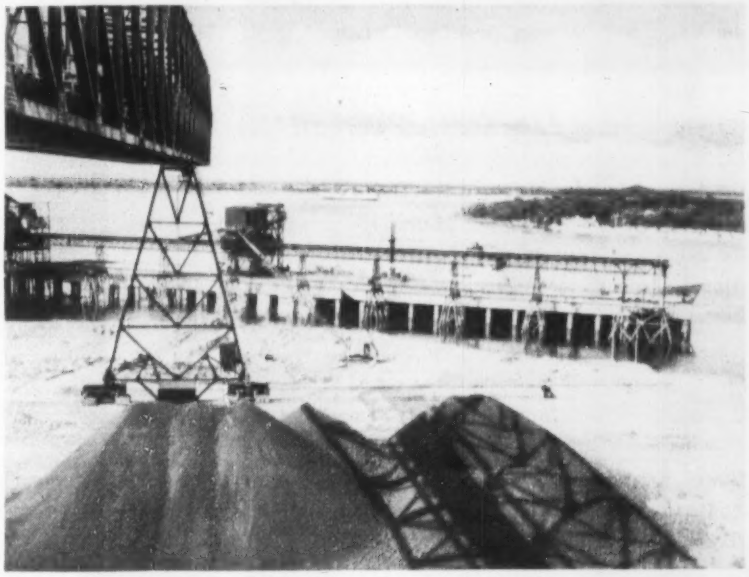
two runaway switch tracks on the railroad along a 7-mile section of 3% downgrade. Switches on the main line are set to open automatically if a train exceeds 21 mph. A train so shunted will be stopped by adverse grades on the runaway tracks.

Construction of the railroad, over about half of its length, required many long cuts in hard granite, while the last 9 miles of the line up the mountain had to be made a sidehill cut in iron-bearing rock. Another feature of both the railway and the highway is the wholesale manner in which drainage structures had to be provided to take care of frequent flash floods. The totals add up to 13 multi-span plate girder bridges and 950 corrugated culverts, some as large as 120 in. dia.

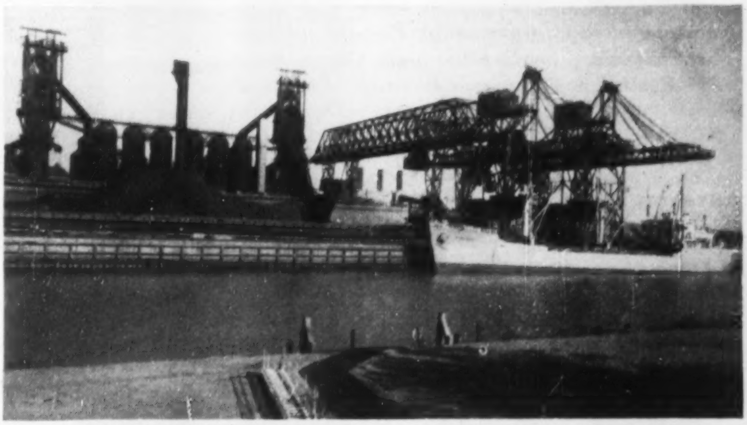
Several facilities at Puerto Ordaz are worthy of note. The dock is the novel DeLong type, a steel barge that lowers its own steel caisson supports and lifts itself on them to the desired height above the water. (ENR Dec. 18, 1952 p 12). It was fabricated in the U. S., and towed to the site.

The ore crushing plant is also located at Puerto Ordaz. The primary crusher is entirely underground in a pit 100 ft deep so that the rail cars can be moved directly into the car dumper which is at ground level. The plant, equipped with a 60-in gyratory crusher has a capacity of 100 tons a minute. The crushed ore is moved by a 60-in steel-cord belt conveyor to the secondary crushers (above ground) and then to storage. Here it is stacked by a 400-ft span ore bridge over two tunnels in which other belt conveyors are installed to move the ore to the dock on which a traveling shiploader is installed. The loading belts on the

(Continued on page 55)



3. **ORE IS SHIPPED** from this Orinoco River dock after being moved from storage pile to ship-loader on belts.



4. **ORE IS RECEIVED** at Fairless Works wharf and unloaded directly into storage adjacent to the blast furnaces.

PREPAKT METHOD SELECTED FOR UNDERWATER PLACEMENT OF CONCRETE COFFERDAM SEALS

Intrusion Grouting of Preplaced Aggregate Used to Embed Forest of Piling for Chehalis River Bridge

Contractor: Mac Rae Brothers, Seattle
Engineer: Washington State Department of Highways

■ Prepakt is "preferred" again!

This time it's for the cofferdam seals of the two largest piers at the new Chehalis River bridge, Aberdeen, Washington. Embedding closely spaced timber piling at this project introduced complications—but Prepakt's underwater grouting of preplaced aggregate proved to be a neat, cost-saving solution.

The contractor's decision to use Prepakt methods and materials was based on pertinent advantages of this modern technique:

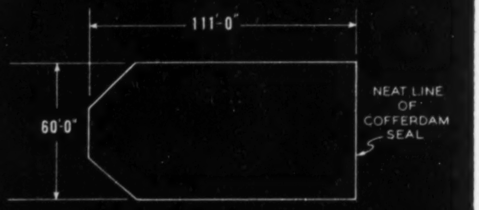
(1) the plant set-up required was small and simple
(2) preplacing of coarse aggregate was quite easy
(3) a rapid grout pumping schedule could be maintained
(4) labor cost savings could be realized

Finally, the close positioning of the 16-foot long piling stubs on 3-foot centers made conventional underwater methods of concrete placement difficult and expensive.

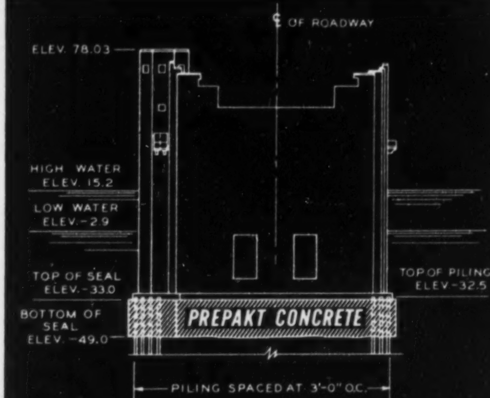
With Prepakt, the coarse aggregate was preplaced in the piers by dump truck and clamshell, then Intrusion Grout pumped in to displace the water and fill all voids. The result—dense, high-strength concrete forming an impermeable, monolithic structure. Some 8000 cubic yards of Prepakt Concrete, designed for a compressive strength of 4000 psi at 28 days, is being placed at Aberdeen.

If you have a construction problem involving underwater concrete placement, why not investigate Prepakt for outstanding economy.

For complete information on Prepakt methods and materials, contact the Main Office, Room 779-K, Union Commerce Building, Cleveland.



PLAN AT ELEV. -33.0



REAR ELEVATION

HIGHWAY ENGINEERS *PLEASE NOTE:*

The use of Prepakt concrete in cofferdam seals has been approved for inclusion in future state highway specifications as an alternate to conventional methods. For specific information or engineering assistance, write or wire Prepakt.

CONTRACTORS PREPAKT **ENGINEERS**

THE PREPAKT CONCRETE CO.
INTRUSION-PREPAKT, INC.

MAIN OFFICE: CLEVELAND 14, OHIO
CANADIAN OFFICE: TORONTO, ONTARIO

CHICAGO • ATLANTA • PHILADELPHIA
SEATTLE • SAN FRANCISCO

ZURICH • HELSINKI • MADRID • STOCKHOLM
PARIS • BERLIN • LONDON • TOKYO • HAVANA

shiploader are on a pivoted boom which can be adjusted in height for large or small ships or to compensate for rises in river level, which may be as much as 40 ft during the annual floods in the Orinoco.

Finally, to make all of this construction usable, there was the dredging job involved in opening up a jungle watercourse almost 200 miles long. This operation, too, had its unique features. The two large dredges, of 30 and 28-in discharge capacity, had to be supplemented by a fleet of 35 vessels ranging from houseboats to an LST, and including a refrigerated ship. Dense jungle growth frequently had to be cleared before the discharge line could be run inland. In deep water the spuds had to be supplemented with anchors. Most of the dredged material was sand and mud, but there was enough rock encountered to break several 11-in cutter shafts, whose repair or replacement, so far from sources of supply was always difficult. The total staff to be housed and fed reached a maximum of 320. Because of the loneliness, difficult working and living conditions and sickness, labor turnover was high; only 6 out of every 10 men stayed out their contract time.

• **Engineers and contractors**—The U. S. Steel work in Venezuela is handled by its subsidiary, Orinoco Mining Co., of which W. W. Wannamaker is chief engineer. The general contractor was Bechtel International Corp; power plant consultants, Gibbs & Hill; dock contractors, Raymond Concrete Pile Co and DeLong Engineering and Construction Co; dredging contractors, Gahagan Overseas Construction Co. and McWilliams Dredging Overseas Corp.; railroad and highway contractor, Morrison-Knudsen Co., Inc.; and ore handling system contractor, Link-Belt Co.

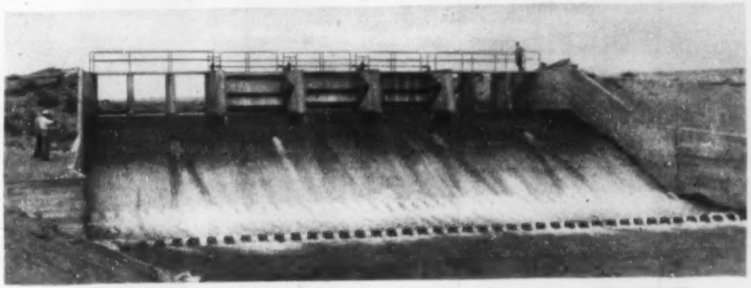
International briefs . . .

• **Construction in Cuba**—The construction pace in Cuba has been increased by government authorization of a $12.5-million issue of public debt bonds. Money will be used for building (and equipping) a $10-million Palace of Justice building in Havana and for the purchase of land, buildings and equipment for courts in other towns of the island.

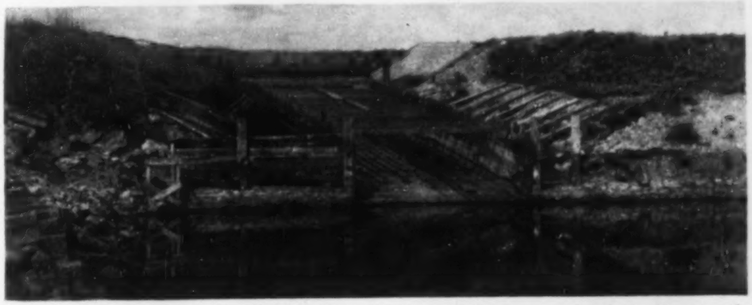
• **Subway plans simmer**—Final plans have been completed for the first section of a projected subway system in Milan, Italy. This first line—a distance of some 7½ mi—will be built as a part of a recently modified general plan. Cost is estimated at $40 million and the work is to be completed in three years time.

• **Bank backs airport plan**—The Export-Import Bank will loan $2.5 million to Ecuador to help finance the cost of improving and expanding airport facilities at Quito and Guayaquil. Total cost of the program: over $4.8 million. Bank credit will be used for building runways, taxiways, auto and airplane parking areas—and for setting up a new lighting system. Ecuador will provide the money for constructing terminal buildings and any future improvements. Under terms of the agreement, engineering and construction work will be done by U. S. firms.

• **Hospital for Mexico City**—A $7-million hospital is scheduled for construction in Mexico City by Seria de Salubridad y Asistencia (a local firm). Enrique Yanez, also of the city, is the architect.



NEW CONCRETE CHUTE, a drop structure on the main canal near Travers Dam . . .



REPLACES OLD WOODEN STRUCTURE controlling water levels in the steeply dropping channel.

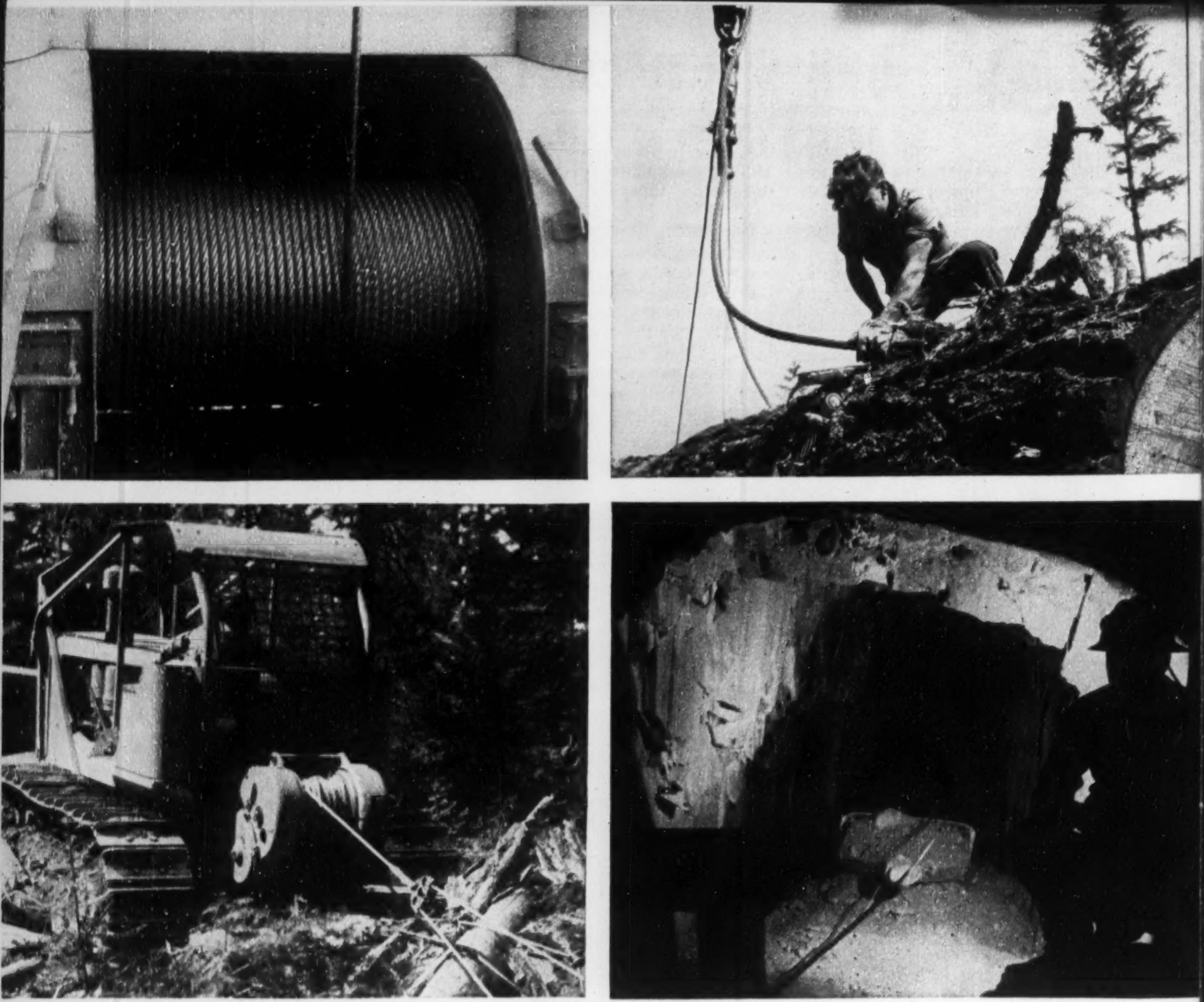
Canadian irrigation project to irrigate 240,000 acres in Alberta

Major canal renovation is finished at Canada's Bow River Development, and completion is expected this spring on the project's main structure—Travers Dam, which was started in 1951.

Designed to renovate an existing irrigation system, the project will expand the irrigable lands around Bow River, in southern Alberta, from 55,000 to 240,000 acres. Travers Dam will form a reservoir that will replace 10 miles of old canal located on steep hillsides. The reservoir will serve as the connecting link between Lake McGregor—main storage for the entire Bow River project—and the Little Bow Reservoir. Water from the Bow River is diverted into Lake McGregor by a series of canals and syphon works.

Travers Dam is a 3,000-ft long 155-ft high rolled earth structure that will back up a lake containing 265,000 acre-ft of water. A reinforced concrete chute, 960 ft long and with a capacity of 8,000 cfs, will serve as the dam's spillway. The chute will have three 7-ft wide 20-ft high radial gates at the 66-ft wide inlet. Narrowing to 30 ft wide at the middle, the chute flares to a measurement of 92 ft at the outlet.

The government of Canada is paying for the construction of Travers Dam and for expanding the irrigated area in the development to 110,000 acres, while Alberta's provincial government is responsible for the rest. The project now has 77,000 acres under irrigation.



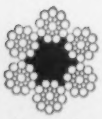
OVERCOMING ABRASION—Wire rope takes a beating on some jobs by abrasion. It is squeezed in multiple layers under tremendous pressure on rotary drilling drums in the Texas oil fields. In the Northwest it drags under heavy logs. In this Arizona mine it is scraped over rocks to operate a slusher. Everywhere it is rubbed severely on winches that do not wind smooth. Under such conditions Red-Strand 6 x 19 Seale wire rope will last longer and save you money.

What can you do better with 6x19 Seale Red-Strand?

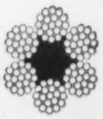
6 x 19 Seale has the same strength and weight as the more frequently used 6 x 19 Filler Wire, but the arrangement and size of the wires is different. You can see in the diagrams that the outer wires are fewer in number and larger in size. They provide *high resistance to abrasion* and greater wearing quality with somewhat less flexibility.

It's the perfect rope for certain jobs. Would it solve a problem for you? Be less trouble? Save more money? A Leschen man is near you. Perhaps he can help. Leschen is providing *longer-than-expected* wire rope service to industry everywhere.

Send for the 64-page Leschen Wire Rope Handbook. It describes Seale and all other Red-Strand wire rope constructions.



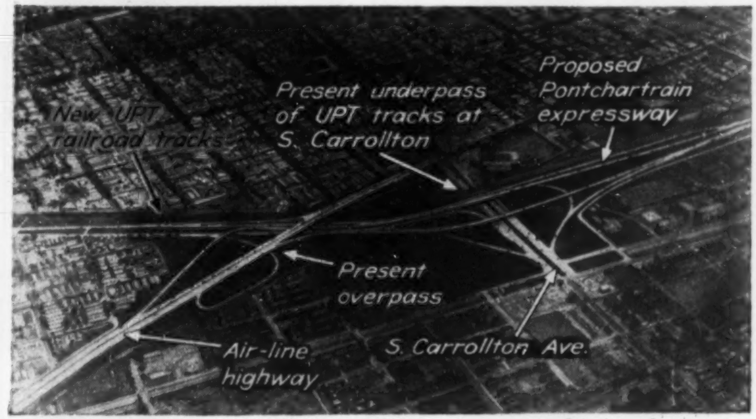
6 x 19 Seale



6 x 19 Filler Wire

LESCHEN WIRE ROPE DIVISION
The Watson-Stillman Company
(A SUBSIDIARY OF H. K. PORTER COMPANY, INC.)
St. Louis 12, Missouri

LESCHEN
HERCULES Red-Strand
WIRE ROPE


New UPT railroad tracks
Present underpass of UPT tracks at S. Carrollton
Proposed Pontchartrain expressway
Present overpass
Air-line highway
S. Carrollton Ave.

COMPLICATED SEPARATION PROBLEMS were encountered in interchange areas.

City eliminates 144 grade crossings —Five rail stations replaced by one

A milestone in New Orleans' $54-million grade separation program was reached recently when the new Union Passenger Terminal was put into partial operation.

First train to use the $2.25-million station was the Southern Pacific's "Sunset Limited." Shortly afterwards, trains of the Illinois Central and Missouri Pacific Gulf Coast Lines moved into the facility.

After April 1, all other railroads serving New Orleans will operate from the new terminal, thereby paving the way toward razing five railroad stations now in use.

With the opening of the new station for the western railroads, Mayor deLesseps S. Morrison announced that the city-wide grade separation Union Station program is approximately 75% complete.

• **The program**—The integrated public improvement plan will provide the city with a unified railroad passenger track system; elimination of 144 grade crossings; construction of 24 overpasses and underpasses separating rail and street traffic; construction of three expressways and the creation of an over-all new transportation system for the city.

• **What's been accomplished**—To date, thirteen overpasses and underpasses have been completed.

In addition to the 24 grade separation structures on the current construction timetable, six other structures are to be built over a 10-year period.

The grade separation program is eliminating grade crossings that have existed for years along railroad tracks of the eight trunk lines serving New Orleans, many of them causing time-consuming traffic snarls on important arteries.

Consolidation of these tracks into one crosstown system for all eastern carriers along Florida Ave. and a second system of tracks for central and western carriers paralleling the Air-line Highway (US 61-65 to Baton Rouge), not only eliminates grade crossings but the concentration greatly reduces necessary railroad trackage.

The two track systems join just above S. Carrollton Ave. on the fill of the recently-covered New Basin Canal.

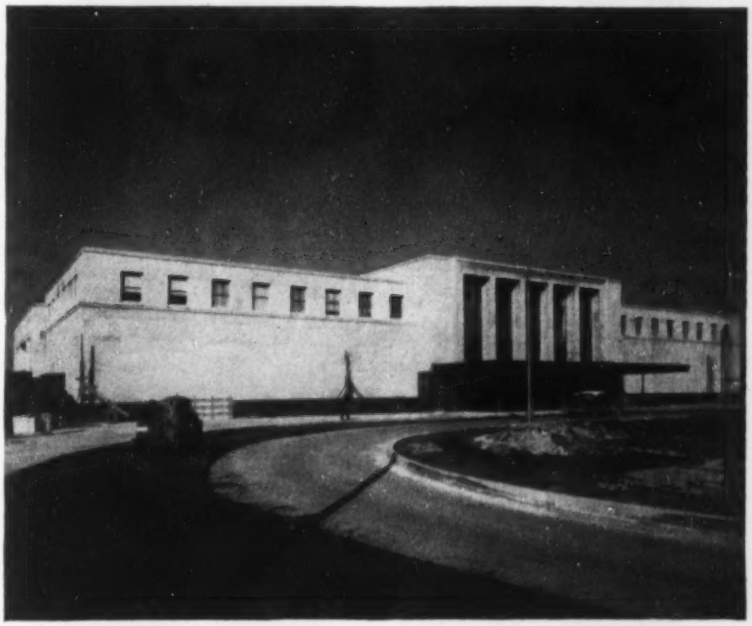
In addition to providing part of the needed right-of-way for the Union Terminal tracks, the covered canal also will serve as the roadbed for the planned Pontchartrain Expressway—a partly elevated superhighway that will connect the Airline Highway with the new Union Station traffic circle and the east bank approach to the new Mississippi River bridge.

Work on the Carrollton-Air-line Highway interchange, the first unit of the Pontchartrain Expressway, is scheduled to start in the near future. The interchange will be a three-level crossing separating rail and street traffic and providing for an uninterrupted flow of vehicles at the key intersection.

The first stage of this project is the building, by the state highway department, of an overpass connecting Pontchartrain Blvd. (the present traffic artery paralleling the filled-in New Basin canal) and S. Carrollton Ave. to take traffic over the western approach tracks of the new passenger terminal.

The second stage of construction will connect the Air-line Highway with the Pontchartrain Expressway by carrying Air-line traffic over S. Car-

(*Continued on page 58*)



THE UNION PASSENGER TERMINAL, will, when in full operation, replace five old ones.

Who's Selling What . . . HERE?

LISTEN MEN . . . we almost mean it literally when we say: "We're not out to sell just Scaffolding to you". Frankly, we've got an idea to sell—an idea on 'how-to' erect better scaffolding—'how-to' *do the job cheaper!* The man we sold on this job, bought our idea of using 6½ ft.-high Ezebilt panels—cut 50 panels out of his needs and *saved almost one third in erection time* alone. THIS is what we're in business for—to provide you with not only the best scaffolding made, but also the best way to use it. Our new catalog pictures and tells many more reasons why you should buy Universal **Ezebilt** Scaffold.

Write for our New Informative Scaffolding Catalog

UNIVERSAL
Ezebilt
SCAFFOLDING

Distributors offer planning help and fast deliveries from Sales and Rental Stocks . . . See your phone directory

UNIVERSAL MANUFACTURING CORP., Zelienople 3, Pa.

GALVEZ OVERPASS—An all-welded design with continuous steel stringers over 17 spans.

rollton Ave., and also over the western approach tracks.

William G. Zetzmann, railroad terminal board chairman, said the project will cost an estimated $3.2 million, and will be entirely under the control of the state highway department. The estimate is for construction of all of the first and as much of the second stage as can be accomplished with the remaining earmarked funds. Additional millions will be required to complete the interchange.

With 13 grade separations completed, this is the status of some of the 11 remaining ones in the current schedule:

- The City Park underpass will be ready within a few weeks, eliminating one of the city's long-time traffic bottlenecks at the intersection of City Park Ave. and Metairie Rd., and the now covered New Basin Canal.
- Now under construction are the S. Claiborne Ave overpass, the Palmetto St. overpass and Paris Ave. underpass.

The S. Claiborne overpass, near the new Union Station, is the largest of the grade separation structures. It is 0.781 mi long and the cost is placed at $4.2 million. It is being built by Farnsworth and Chambers, with George F. Stevenson as project engineer for the state highway department.

Besides spanning the Union Station tracks, it will go across the proposed Pontchartrain Expressway.

Additional high-level traffic crossings, planned for the overpass in the future will bring the total to an estimated $6.6 million, according to George S. Covert, state highway director.

(*Continued on page 61*)

"We're rock specialists —

and so are our MICHIGANS"

says Dominick Cutrupi, Jr.

Project: Sewage Disposal Plant, West New York, New Jersey
- Trench 12' to 20' deep, practically all through solid rock
- Install 2000 ft. of 84' diameter concrete pipe, 8-ton sections.

Contractor: D. Cutrupi & Sons
Fort Lee, New Jersey

Equipment: 3 MICHIGAN ½ yard shovel cranes
Two TLDT-20, one TMDT-16

"10 hours a day, six days a week muckin' out rock, doing work of ¾ yard machines—our MICHIGANS take big-league punishment.

"Just as tough as the trench job, almost the whole length through solid rock, is the handling of pipe. A pipe section is lifted off a flat-bed truck by the crane, one end is butted against the front of the machine, and the crane is 'walked' about 300 feet to point of installation—a really delicate operation.

"That MICHIGAN combination of delicate 'handle-ability' and fast, positive air-control action is what we like most.

"Maintenance?—On our seven-year old MICHIGAN TMDT-16 we've spent less than $1000 on maintenance and repairs.

"Our MICHIGANS make money for us."

Check the MICHIGAN* Line, point by point, against all others . . .

- **Air Control speed and perfect handling**
- **Rugged chassis—for long life**
- **Fast, smooth swing**
- **Easy, quick maintenance**

and you'll see right away how you can

Move More with a MICHIGAN

Talk to the MICHIGAN dealer; and send for the interesting and easy-to-use MICHIGAN Fact-Folio — all the information you want, in handiest form. Use the coupon.

*A Trade Mark of Clark Equipment Company

CLARK EQUIPMENT Construction Machinery Division

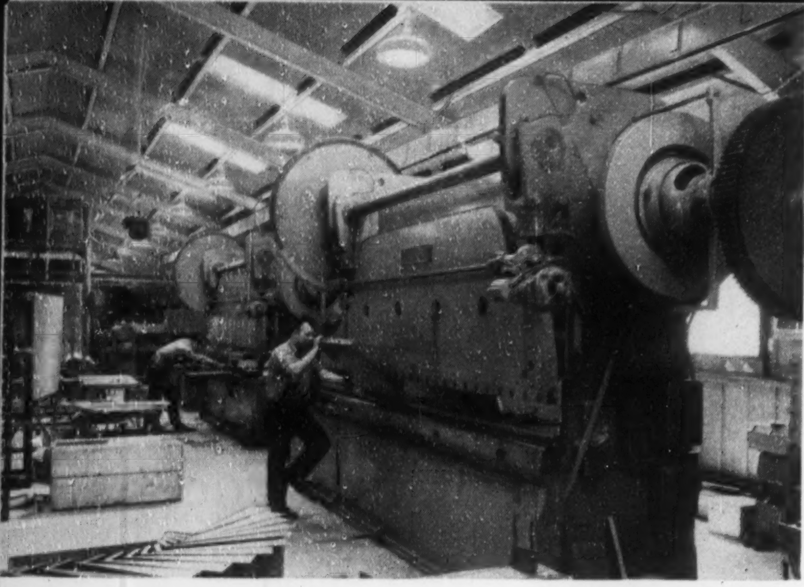
Construction Machinery Division
CLARK EQUIPMENT COMPANY
390 Second St., Benton Harbor, Michigan, U.S.A.

Please send the MICHIGAN Fact-Folio

Name______________________________

Address____________________________

City________________ Zone_____ State________



Battery of press brakes in the complete new plant of Lake Shore Electric, Inc., Bedford, Ohio. Butler steel buildings were used throughout . . . saved half the cost of new construction . . . gave Lake Shore a more efficient, better lighted, safer plant.

Buildings too *work harder, earn more*— when they're BUTLER steel buildings

Take a look at the performance of the new Butler-built plant erected for the Lake Shore Electric, Inc., Bedford, Ohio. They formerly occupied 30,000 square feet in a 4-story building—then "expanded" to a 1-story 23,300 square foot rigid-frame Butler steel building.

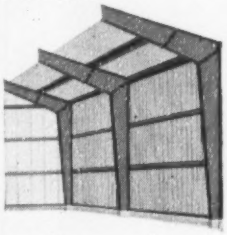
Production increased! Here is how Mr. S. W. Soos, President of Lake Shore Electric, explains it, "There is less waste motion now that everything here is on one floor. Post-free Butler construction also lets us place machines and materials for the most efficient work flow. Employees appreciate the soft, natural lighting from the Lite*Panls, and overall efficiency is improved by the convenience of our new layout. Yet square foot cost was considerably less than the cost of many common types of construction—only $6.00 per square foot *including* insulation, lighting and even overhead cranes."

Build better—for less money—with Butler steel buildings. They give you every advantage of conventional construction *plus* these profit-producing extras: (1) Your capital investment is lower, (2) Faster erection time puts you in production earlier, (3) steel or aluminum sheeting lowers maintenance costs, (4) pre-engineered Butler buildings do not become obsolete—you can profitably expand, alter or relocate them at any time to meet new demands of our fast-changing economy. Write today for full particulars about Butler buildings and the name of your nearest Butler dealer.

Here is why BUTLER is a better buy

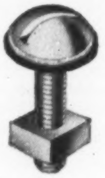
Every Foot of Floor Space is Usable

There are no interior posts or columns to waste space and create work-slowing "bottlenecks." Rigid-frame construction also shrinks maintenance costs . . . extends building life.



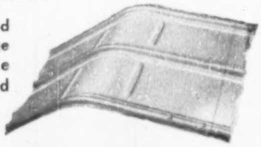
Fast Erection . . . Easy Expansion

Precision-punched and dimensioned bolt holes speed erection—simplify expansion or dismantling and moving. Galvanized bolts, with Neoprene rubber washers, lock deep-corrugated sheets firmly to the sturdy frame.



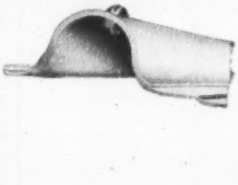
Weatherproof Protection

The one-piece, die-formed roof ridge eliminates ridge roll—helps to make the building leakproof and weather-tight.



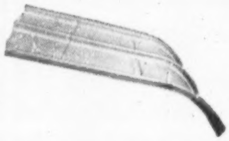
Triple-Strength Corrugated Sheets

Butler sheeting, with deep-drawn corrugations formed on 12-inch centers, is three times as strong as ordinary corrugated sheets. Overlapping corrugations bolt tightly together for maximum strength and weather protection. Available in steel or aluminum.



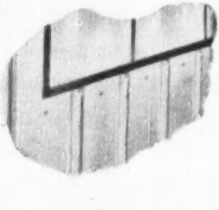
Attractive Curved Eaves

The neat, die-formed eaves—which bolt to the roof sheets—add to the appearance of Butler steel buildings . . . increase the strength of the eaves . . . help insure weather-tightness.



Weather-sealed Windows and Base

Where corrugated sheets meet windows or the foundation, they are tightly crimped for a snug fit that keeps out snow, moisture and rodents.



BUTLER STEEL PRODUCTS

BUTLER MANUFACTURING COMPANY

7418 East 13th Street, Kansas City 26, Missouri
918 Sixth Avenue, S. E., Minneapolis 14, Minnesota
1028 Avenue W, Ensley, Birmingham 8, Alabama
Dept. 18, Richmond, California

Manufacturers of Oil Equipment • Steel Buildings • Farm Equipment • Cleaners Equipment • Special Products

Factories located at Kansas City, Mo. • Birmingham, Ala. • Richmond, Calif. • Galesburg, Ill. • Minneapolis, Minn.

The Palmetto structure, being built by the Boh Brothers Construction Co., with the engineering and design under the supervision of David W. Godat and Associates, is a $1.5-million structure consisting of two 28-ft divided roadways over the western track approaches and the Air-line Highway.

The largest overpass thus far completed is the S. Broad Overpass, a $3.9-million structure that crosses 16 tracks of the Union Station approaches, the planned Pontchartrain Expressway and two streets.

It was built by Farnsworth and Chambers, with G. A. Heft & Co. as consulting engineers. The total length of the structure and approaches is one and one-third miles. The main structure has two divided 28-ft roadways. Ramps lead to and from the two streets underneath.

Two additional grade separation structures are scheduled to be placed in construction within the next several months. They will be located at the Southern Railway tracks on Pontchartrain Blvd. and at Wisner Blvd. and Florida Ave.

Other thoroughfares connected with the separation program are the Loyola Expressway and the Calliope Expressway—the latter renamed Earhart Blvd. in honor of the late Fred Earhart, city commissioner, considered the father of the program.

Work is now in progress on the Loyola project, a 152-ft-wide expressway running from Tulane Ave in the main business district to the new station.

Earhart Blvd, will run from near the station across the city to the Orleans-Jefferson Parish line, connecting en route with highways and other traffic arteries leading westward from the city.

The boulevard already is an eight-lane highway for part of its route, and the extension of these roadways is scheduled for early construction. Most of the necessary rights-of-way have been acquired.

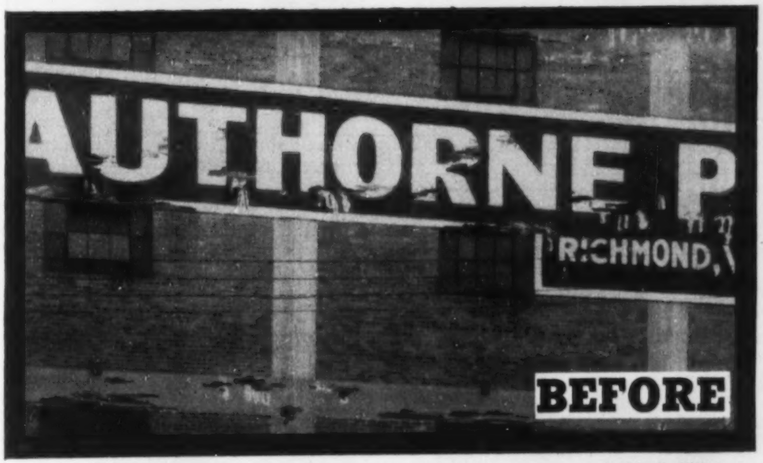
Supervising the grade separation part of the program is the New Orleans Railroad Terminal Board, a citizen agency of the city government. Chairman is W. G. Zetzmann, and the engineer is Charles Cassagne.

The Union Passenger Terminal Committee has directed the construction of the new station with C. J. Wallace, who served as chief engineer for the committee, having been named recently as manager of the new terminal.

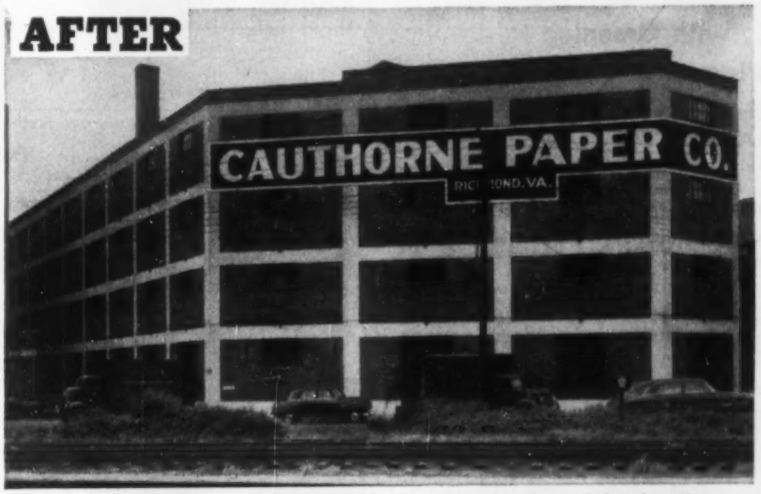
The new station is the last major

(*Continued on page 62*)

THORITE ***patching mortar and two*** **THOROSEAL** ***applications rejuvenated this Virginia building***



Constant weather exposure over the years caused the masonry of this building to disintegrate. If this unsightly condition had not been corrected it would have finally imperiled the structure of the building.



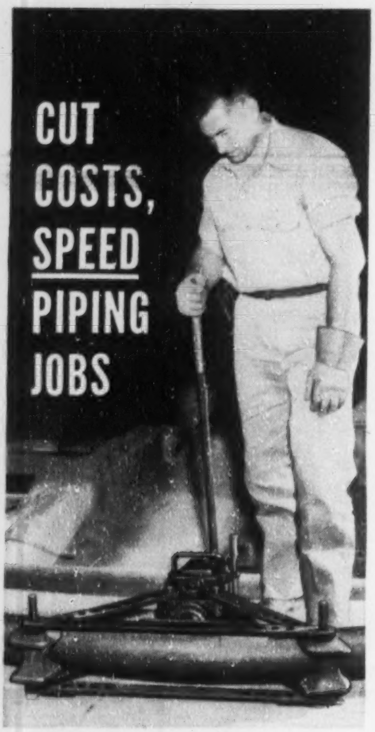
All concrete spandrel beams, columns, window heads and brick sills were patched and brought flush with surrounding surface by the use of The THORO System product, THORITE, a twenty-minute set, nonshrink, patching mortar. Two brush coats of THOROSEAL were then applied over entire reinforced concrete surfaces, to prevent further disintegration, also to beautify building.

CONTRACTOR: Southern Waterproofing and Concrete Company, Inc.,
1704 Arlington Road, Richmond, Virginia.

Get our pictorially-described literature, "HOW TO DO IT" and specification guide.

THORO
Since 1912

STANDARD DRY WALL PRODUCTS INC.
NEW EAGLE, PENNSYLVANIA



...with Greenlee Hydraulic Pipe and Conduit Bender

Built for the tough jobs, the GREENLEE Bender saves hours, reduces costs on your pipe and conduit work. With a GREENLEE *one man* quickly makes bends in pipe up to 5", rigid and thin-wall conduit *right on the job*, exactly where and when needed. Many owners report time and labor savings of 50% or more . . . and the cost of many manufactured bends and fittings is entirely eliminated. Compact, portable, versatile to reduce your costs, eliminate construction delays, keep jobs rapidly moving along on schedule. Available in two sizes. Thousands in use by construction crews, electricians and plant maintenance departments. Often pays for itself on the very first job!

FREE BENDER BOOKLET with complete data and illustrations on GREENLEE line of hand and hydraulic benders for tubing, pipe and conduit. Shows how to do various bending jobs quickly and easily to cut job time, reduce costs.

TOOLS FOR CRAFTSMEN
GREENLEE

GREENLEE TOOL CO.
2221 Columbia Ave., Rockford, Illinois

unit of construction being completed in the passenger terminal area. It is claimed to be the only air-conditioned railroad depot in the country. The building is a steel-frame structure with sandstone walls and marble and bronze interior finish. It has 94,000 sq ft of floor area.

The contractor for the terminal was Chris Larsen & Co. of New Orleans.

Altogether, the UPT committee estimates that the railroads will contribute approximately $22 million to the over-all program. The city is putting up about $21 million, principally from bond proceeds, and the state and federal governments are providing approximately $11 million for key projects that are part of the U. S. and state highway systems.

Authority finally wins—is building incinerator

After six years of indecision and discussion characterized principally by the remarkable patience and endurance of its members, the Southeastern Oakland County, Mich., Garbage and Rubbish Authority finally is moving ahead with construction of a new incinerator.

The authority, composed of city managers and township supervisors from 11 member communities, originally was established in 1947 to provide an incinerator to serve the municipalities.

Trouble was first encountered when nobody would consent to having the proposed structure erected at any of the sites suggested by the authority. When the present site at Twelve Mile Road was agreed upon financing could not be obtained readily.

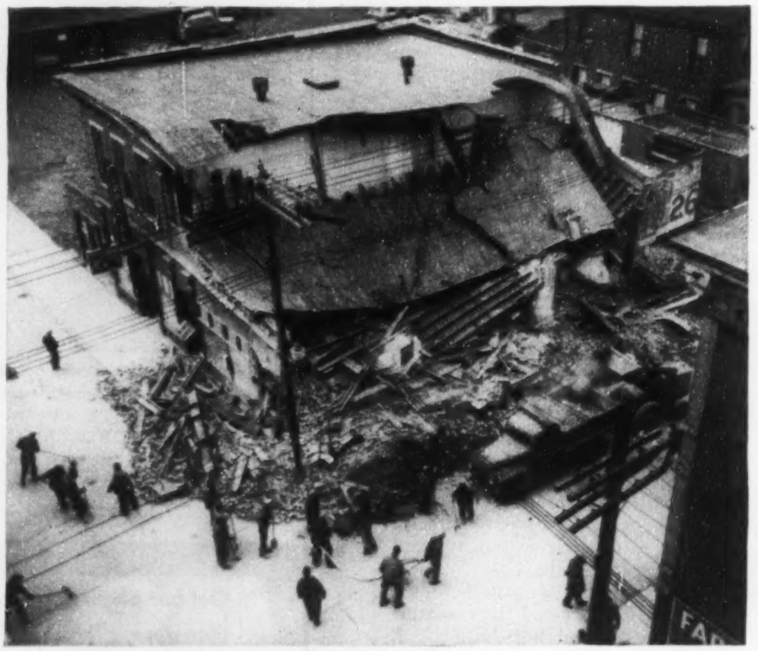
Recently, however, a $1.8-million bond issue, carrying a 4½% interest rate, was sold when the authority agreed to pay a brokerage combine a $72,000 bonus.

So, with misfortunes apparently behind it, the authority is moving ahead with the project that is expected to be ready for use early in 1955.

George Schmid, engineer manager of the incinerator, says that no rate structure has been established, but indicates that participating communities will pay a flat rate per ton. Other communities not members of the authority will be invited to use the incinerator at somewhat higher rates.

Administrative and other costs incurred are divided proportionately among the 11 member communities.

(*Municipal continued on page 67*)



Who slipped on this one?

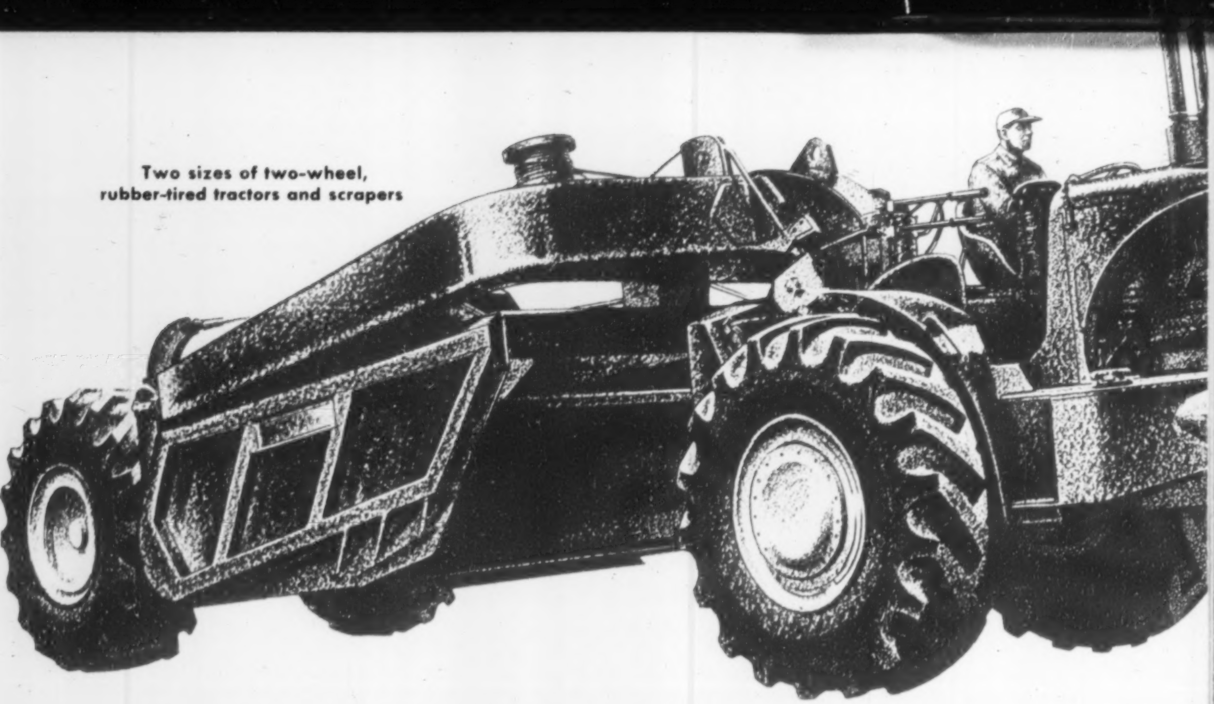
The recent collapse of this two-story brick and frame business building in downtown Charleston, W. Va., was blamed upon an underground-cable excavation in the sidewalk alongside the structure. No one was injured, but owners have filed suit against the contractor and the power company for $40,000 in damages.

International Harvester and INTERNATIONAL Industrial Distributors present a complete line of modern earthmoving equipment, led by the INTERNATIONAL two-wheel, rubber-tired tractors with scrapers, and by “Big Red,” the INTERNATIONAL TD-24, world's most powerful crawler

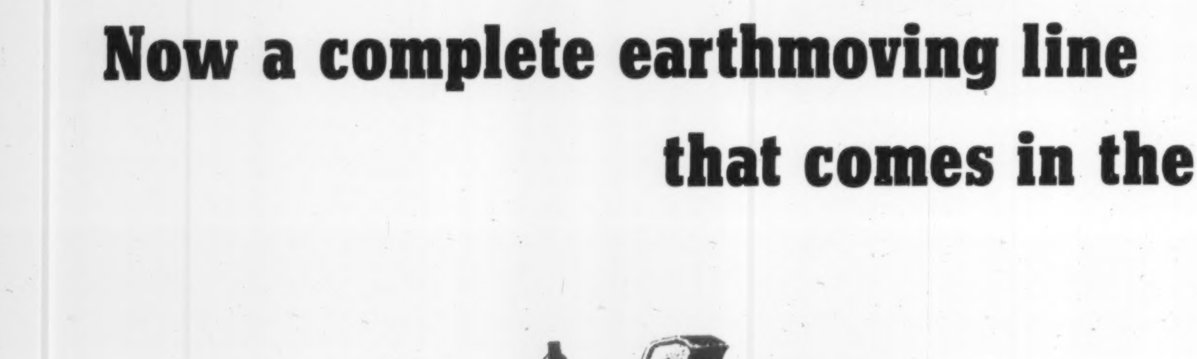
® INTERNATIONAL HARVESTER

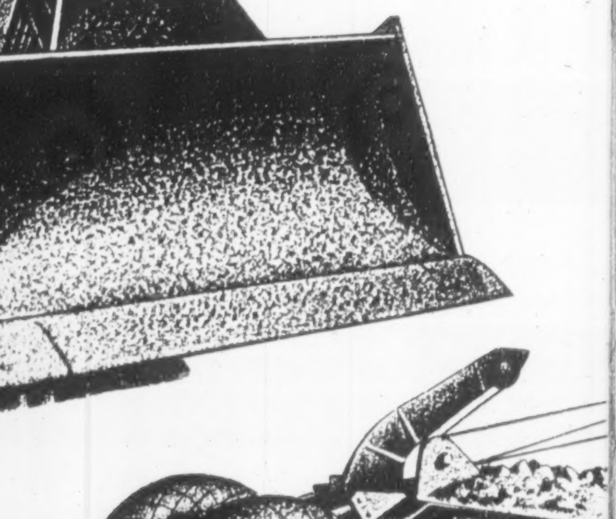
INTERNATIONAL

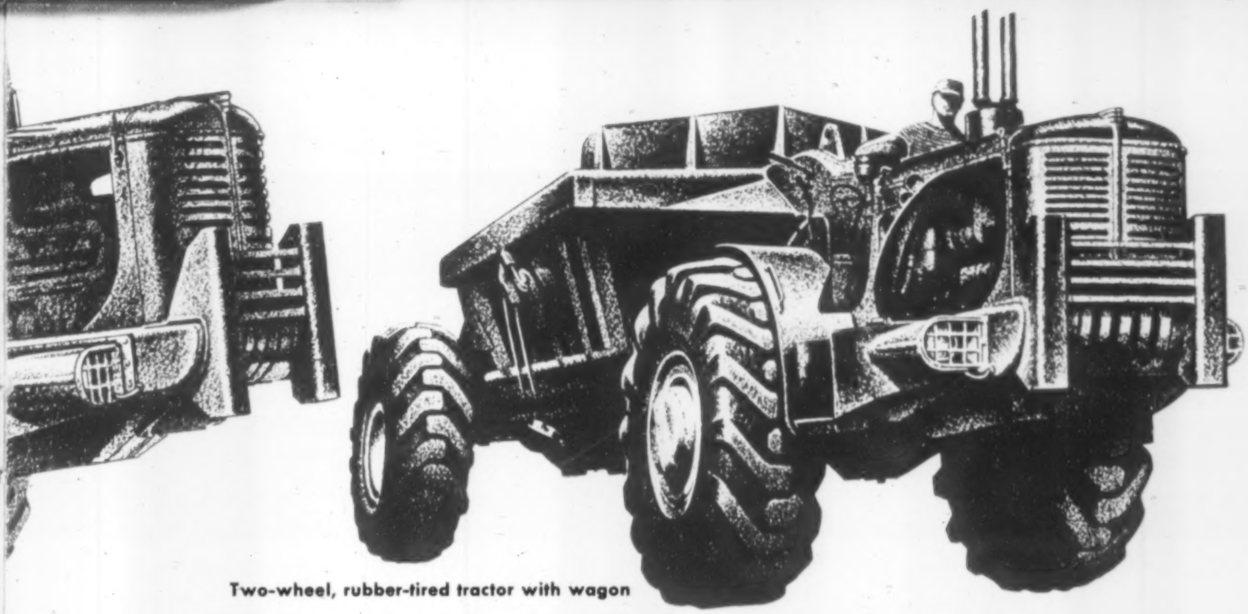
POWER TO MOVE THE EARTH


Two sizes of two-wheel, rubber-tired tractors and scrapers

Now a complete earthmoving line that comes in the


TD-24 with tilting bulldozer





Two-wheel, rubber-tired tractor with wagon

Big Red Package

Got a big job to do? Call on INTERNATIONAL'S new Big Red Team!

- Seven rugged crawlers headed by the TD-24—most powerful crawler on the market!
- Twenty-two matching hydraulic and cable-controlled bulldozers and bullgraders, with land-clearing blades available!
- Four 4-wheeled scrapers!
- Two high-speed, two-wheel, rubber-tired tractors with scrapers (13 and 18 heaped-yard capacity)!
- A high-speed, two-wheel, rubber-tired tractor with bottom dump wagon (20 heaped-yard capacity)!

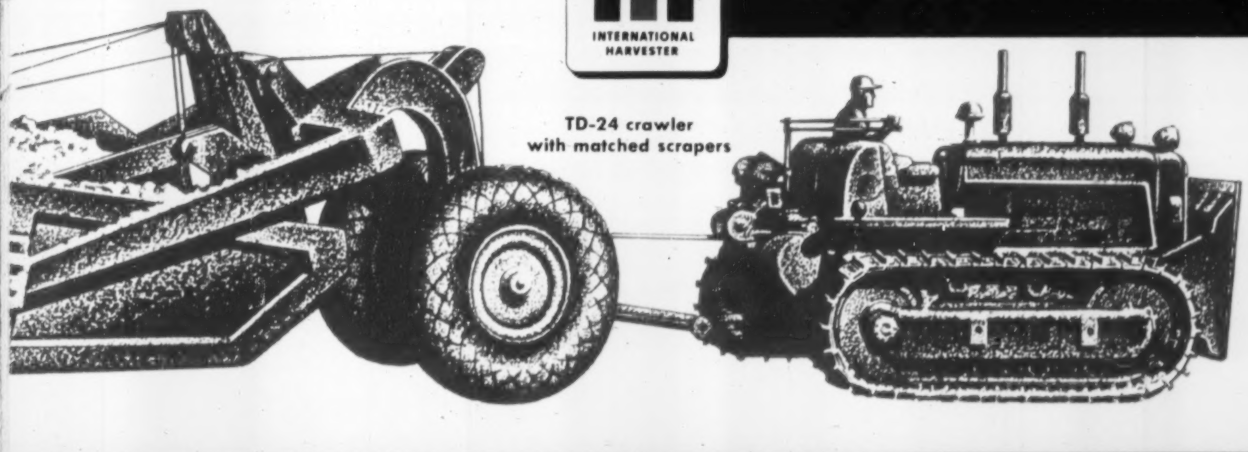
These great machines, now grouped under the INTERNATIONAL banner, have proved their dependability and economy to contractors for years on big projects around the world.

Your INTERNATIONAL Industrial Distributor has the equipment that will help you make a profit on any job you tackle. Call him for full details . . . or for actual demonstrations. See for yourself!

POWER THAT PAYS

INTERNATIONAL HARVESTER

INTERNATIONAL



TD-24 crawler with matched scrapers

Now All in One Family

the hardest-working work teams in the world!

The new INTERNATIONAL team stars not only a full line of rugged red INTERNATIONAL crawlers, complete with INTERNATIONAL scrapers and bulldozers, but also high-speed INTERNATIONAL two-wheel, rubber-tired tractors with scrapers.

This means that now, more than ever, your INTERNATIONAL Industrial Distributor is "Earthmoving Headquarters" for your area. He offers you IH equipment to tackle any job, backed up by unsurpassed service facilities and parts supplies.

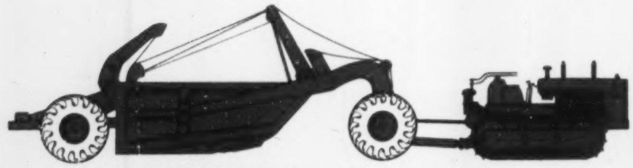
He's at your call, always, to help keep your equipment rolling . . . to cut down your down-time and pile up your profit-time . . . to serve you with INTERNATIONAL "Power that Pays!"

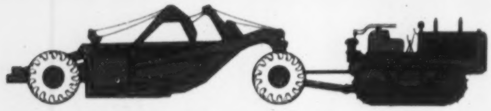
INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

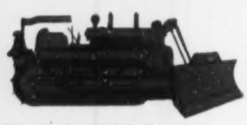
INTERNATIONAL HARVESTER ®

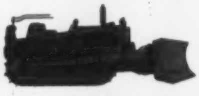
INTERNATIONAL

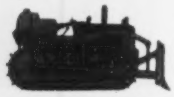
POWER THAT PAYS

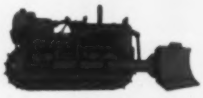

TD-24 crawler with matched scrapers

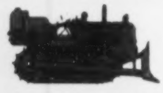

TD-18A crawler with matched scrapers

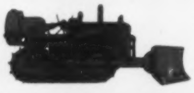

TD-24 crawler with bullgrader

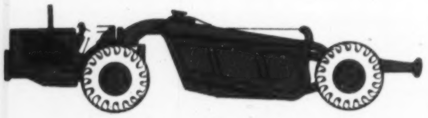

TD-14A crawler with cable bullgrader

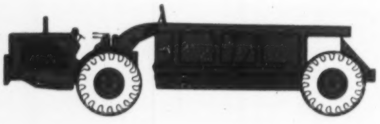

TD-9 crawler with hydraulic bulldozer

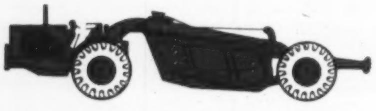

T-9 crawler with hydraulic bullgrader


TD-6 crawler with hydraulic bulldozer


T-6 crawler with hydraulic bullgrader


Model 2T-75 two-wheel, rubber-tired tractor with 18 heaped-yard capacity scraper


Model 2T-75 two-wheel, rubber-tired tractor with 20 heaped-yard capacity bottom dump wagon


Model 2T-55 two-wheel, rubber-tired tractor with 13 heaped-yard capacity scraper

New schools urged

Association study shows school needs still rise

The crisis in education is far from over, according to a recently released report of the advance estimates of public school facilities for 1953-54 prepared by the Research Division, National Education Association of the U. S.

The number of children who will be deprived of full-time schooling because of inadequate facilities will increase by more than 20% over last year's estimate, it was stated.

Last year the association estimated that about 500,000 students were attending school on double-session, or other makeshift arrangements, but this year's figure is set at about 632,000 pupils who will be adversely affected by the lack of classroom space.

• **From the report**—"In August, 1953, the U. S. Office of Education estimated that communities had built 50,000 classrooms in 1952-53, and might be expected to construct another 50,000 in 1953-54. Despite this construction the office said that construction is not keeping pace with classroom needs, which arise not only from increasing enrollments but also from the deterioration and obsolescence of present buildings. The total need by 1960 is for 425,000 classrooms."

According to the report the present lag in school construction began with the depression of the 1930s because of lack of funds; it continued during the World War II period because of a lack of materials, funds and manpower for construction purposes. Meanwhile, the birth rates in the years since 1940 have accelerated enrollment far beyond the predictions made in the 1930s.

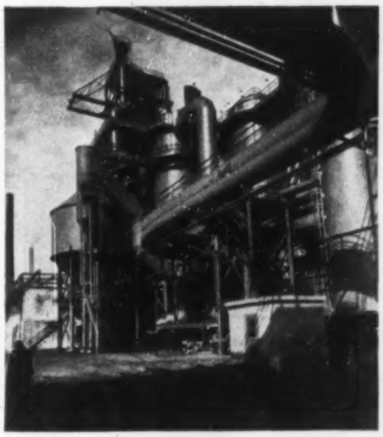
It is suggested that the building situation for the nation as a whole has improved slightly since the 1952-53 period with respect to rural elementary schools, but in urban systems, the building problem has become worse.

• **Funds needed**—Quoting the report, "For the first time in this series of reports an attempt was made in October, 1953, to estimate the total amount of money needed to house present enrollments in public-school buildings on a full-time basis. It represents the amount needed for new construction to eliminate half-day sessions, overcrowded classes and rented and temporary buildings. The estimating at-

(*Continued on page 68*)

HOW FRANKI FOUNDATION COMPANY

Saved over $20,000 for Pittsburgh Coke & Chemical Co.



Blast furnaces, stoves, cast houses, and dust collector of Pittsburgh Coke and Chemical Co. at Neville Island, Pittsburgh, Pa. 274 caissons averaging 14'6". Consulting Engineer and Constructor: Freyn Engineering Co., Chicago.

• Here's a job that was originally designed for 35 ton friction piles, with an estimated length of 40 feet into sand, gravel and some silt. But when Franki proposed a 70 ton minimum load, a test was made to determine net settlement.

Under the 200 ton load test, a Franki Pressure Injected Spread Footing (a 13-footer), showed a gross settlement of 0.18 inches. On removal of load, net settlement was 0.03 inches. As a result, the design load was raised to 100 tons.

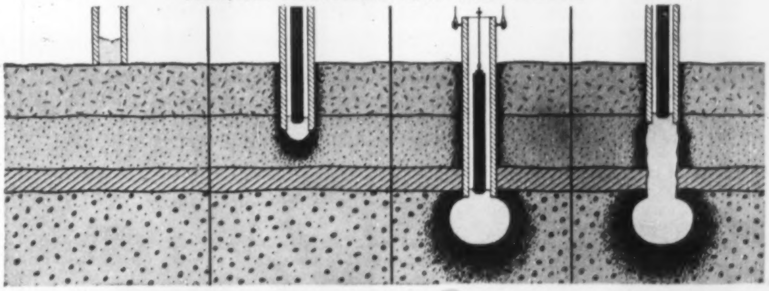
Here's proof again that Franki Pressure Injected Spread Footings are first for safety and economy.

... LIGHTEN YOUR COSTS ... INCREASE YOUR LOAD! ...

FRANKI FOUNDATION COMPANY

Send for "Franki Facts" for complete information about the Pittsburgh Coke and Chemical Company project—and an illustrated booklet describing the Franki Foundation method in complete detail. Write Franki Foundation Company, 114 East 40th St., New York 16, New York.

FRANKI INSTALLATION PROCEDURE



FRANKI FOUNDATION COMPANY

NEW YORK, N. Y.
PHILADELPHIA, PA.
PITTSBURGH, PA.

FIRM FOUNDATIONS FOR OVER FORTY YEARS

Steel When Needed

for the makers of

"RALEIGHS," "VICEROYS" and "KOOLS"

Steel framework for new plant addition at
BROWN & WILLIAMSON TOBACCO CORPORATION,
Louisville, Kentucky
OSSIAN P. WARD,
Louisville, Kentucky: Architect
STRUCK CONSTRUCTION COMPANY,
Louisville, Kentucky: General Contractors
McKINNEY CONSTRUCTION COMPANY, INC.,
Louisville, Kentucky: Erectors
INTERNATIONAL STEEL COMPANY:
All Structural Steel

Meeting the construction schedule for this plant-expansion project left no margin for delay. Because meeting demands for their fine tobacco products—hitting new highs saleswise month after month—made an immediate increase of productive facilities a "must" for Brown & Williamson Tobacco Corporation.

That in turn demanded delivery on-the-double of structural steel. And that's International's *specialty!* Each shipment of the 340-ton order was on the job, timed to meet erection deadlines. Each reached its destination in good order, exactly as ordered. Within two weeks after International's first delivery, this big tobacco plant was growing . . . *fast!*

Quick, accurate fulfillment of structural steel contracts . . . with economy always a prime consideration . . . is one of many steel fabrication services offered you by International. So, whatever your needs or however tough your particular problem, write and tell us the details. No obligation, of course.

INTERNATIONAL SERVICE

1950 EDGAR ST. • EVANSVILLE, IND.

INTERNATIONAL STEEL COMPANY

tempted to eliminate the funds needed to replace obsolete buildings."

". . . The total for the 48 states was $5.1 billion, and this must be considered as a conservative current estimate only for new construction to house the 1953-54 enrollment in public schools. It does not cover repair or replacement of old buildings, nor does it cover future needs adequately."

Redevelopment Law legal?

A test case challenging the constitutionality of Wisconsin's urban redevelopment law is under way before a Milwaukee circuit court. The decision will determine Milwaukee's right to develop areas that are now slums or blighted.

Among operations that are stalled temporarily awaiting a court decision are:

- Redevelopment plans of the Milwaukee Housing Authority that have been stopped;
- Spending of $500,000 appropriated last year by the city for slum clearance that has been put off;
- Issuance of $750,000 in authorized slum clearance bonds that have been withheld by the city;
- and retention by the federal government of the $2.5-million fund that was earmarked for the city's clean-up program.

Municipal briefs . . .

- **Civil Defense Headquarters**—The Portland, Ore., city council has approved preliminary plans for an underground communications center and civil defense headquarters, at the same time authorizing a request for federal matching funds for the $410,000-project. The city's $205,000 share will be financed by revenue from a special tax levy that was authorized by a 1952 vote.

- **Landmark to go**—The old Vanderbilt Theater, in midtown Manhattan, New York City, may give way to a 450-car, six-story parking garage, if plans are approved at a Feb. 3 hearing before the New York City Planning Commission.

- **Thirsty years ahead?**—A serious water shortage threatens the Mahoning Valley, Ohio, industrial district, say observers. Prospect is a result of dwindling supplies, low rate of flow in the Mahoning River, below-normal precipitation and a storage of less than 12 billion gallons of water in the three reservoirs that have a combined capacity of 75 billion gallons.

ON DECK, DOCK, BARGE OR YARD... ON CONSTRUCTION AND DEMOLITION JOBS...

WHIRLETTES

are "on top of the Job!"

A Deck-Mounted Clyde Whirlette Handles Cargo Without Benefit of Dock Handling Facilities

Here's the Clyde Whirlette, a full-revolving steel derrick with a work capacity that is exceeded only by its versatility! Light enough to be practical as a 'top-side' derrick on multi-story construction . . . rugged enough to handle a ton load at 40′ or five ton load at 10′ . . . it's engineered to bear with pride the trade-mark of Clyde!

Bronze bushed, steel turntable has a machined double taper roller path on which four wide-faced steel wheels support rotating structure of boom, A-frame and hoist. Two-drum Clyde unit has efficient, single-cone, ball-bearing friction mechanism. Heavy-duty brakes permit full load control at all times.

SMOOTH, POSITIVE SWINGING . . .

Friction-disc clutches permit boom to be "inched" or swung a full circle at ¾ to 2½ r.p.m. Single lever controls chain and bevel gear drive and automatically sets brakes when in neutral position. Tail swing of only 5′ 6″ permits working in congested areas where ground space is at a premium.

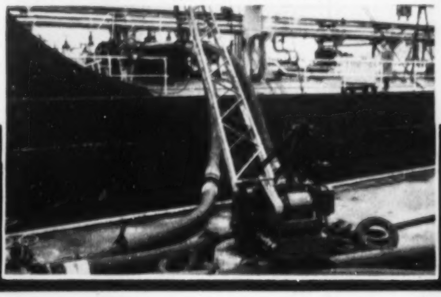
Many other important features of Clyde Whirlettes recommend them for a wide variety of material handling problems. Write for Complete Information Today!

Note the Small Amount of Space Needed for This Barge-Mounted Whirlette Handling Structural Steel

Self-Contained Whirlette . . . An Ideal Material Handling Unit on Construction or Demolition Jobs.

A Dock-Mounted Whirlette Loads Equipment and Supplies from Dock to Dredging Barges.

Operator Always Faces Load to Have Unrestricted Visibility of Working Area in Yard Served by this Clyde Whirlette.



Handling Bulky Hoses from Pipeline to Tanker is a Simple Task for the Compact Clyde Whirlette.

CLYDE

Hoists • Derricks • Whirleys • Builders Towers • Car Pullers • Handi-Cranes • Rollers •

CLYDE IRON WORKS Inc.

ESTABLISHED 1899

DULUTH MINNESOTA

SUBSIDIARY OF BARIUM STEEL CORP

(Advertisement)

Drilling 20-hours a day with Jaeger 600's

Shooting 1,500,000 tons of rock on new West Virginia Turnpike

14 cuts ranging from 30 to 147 ft. deep, a total of 1,500,000 cu. yds. of excavation, 85% of it rock . . . With this contract, H. W. Holt & Son put three 2½ yd. shovels working two 10-hour shifts and set up to drill and shoot 16,000 cu. yds. of rock a day to keep ahead of the shovels.

They chose the most dependable heavy duty drilling equipment yet developed for rock work — ten 4″ wagon drills powered by five 600 ft. compressors, four of them Jaeger "Air Plus" units.

Drilling a steady 20 hours a day, in patterns close enough to insure good fragmentation, even cleavage and a minimum of secondary drilling, these "teams" proved able to average the needed yield of 80 yds. per hour per drill.

Over the 88 mountainous miles of West Virginia's Turnpike (a rugged job if ever there was one), the big majority of air compressors of all makes have been 600's, the "new standard" rating introduced by Jaeger in 1946 and later adopted by all others. As yet, Jaeger "Air Plus" are the only compressors *completely engineered* to the other "new standard" ratings — 365, 250, 185, 125, 75 cfm. Like the 600, they meet the higher requirements of today's tools with adequate air, produced at the lowest known cost per cubic foot.

For complete information, see your Jaeger distributor or ask for Catalog JC-1.

THE JAEGER MACHINE COMPANY
200 Dublin Avenue, Columbus 16, Ohio

TRACTOR LOADERS • PUMPS • CONCRETE MIXERS • TRUCK MIXERS • PAVING MACHINES

MEN AND JOBS

Canadian Bechtel elects Sidney Blair president

Sidney M. Blair has been elected president of Canadian Bechtel Ltd., an affiliate of Bechtel Corp. He has been with the company in Toronto since 1949, serving both as vice-president and a director.

At one time an engineer with the Canadian Research Council, Blair from 1927 until 1949 was with Trinidad Leaseholds (in Trinidad, London and Canada), completing his service with that oil company as controller of research and development. During World War II he directed Trimpell, the British government's aviation production plant in England. He also had charge of developing a refinery and aviation project in Trinidad.

Canadian Bechtel projects include engineering and construction management of the 718-mi trans-mountain oil pipe line from Edmonton, Alta. to Vancouver, B. C.; the design and construction of Imperial Oil Ltd.'s new 25,000-bbl refinery in British Columbia and Dow Chemical's Latex plant at Sarnia, Ont.

Ivy H. Smith Co. joins wire reinforcement group

Ivy H. Smith Co., Jacksonville, Fla., has been named a member of the Wire Reinforcement Institute.

President and founder of the company is Ivy H. Smith, who has been active in Southern contracting and construction work, and—more recently—in the manufacture of reinforced concrete pipe. Currently he is serving as president of the American Concrete Pipe Association.

As a member of the institute, the company will join in research to broaden the use of welded wire fabric. Giving technical assistance and information is another major activity of the Washington, D. C., trade association.

Cement company makes major personnel changes

The Lehigh Portland Cement Co. has announced eight major personnel changes in its top management.

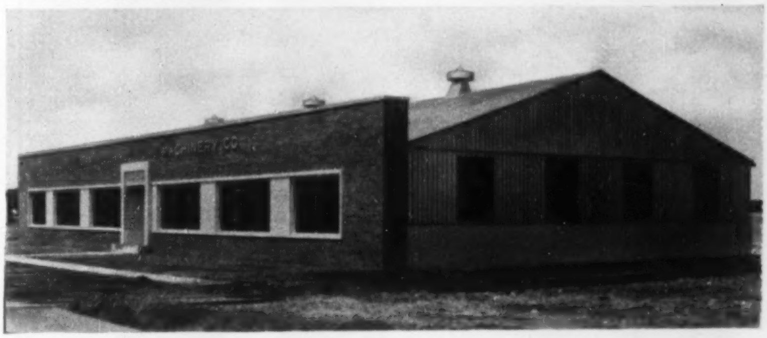
P. A. Groll has been named vice-president and operating manager, succeeding Roy N. Young, retired. Arnold J. Johnson has been elected vice-president and assistant operating manager, while Harold A. Butz has been elected treasurer. E. D. Meredith has been appointed director of employe

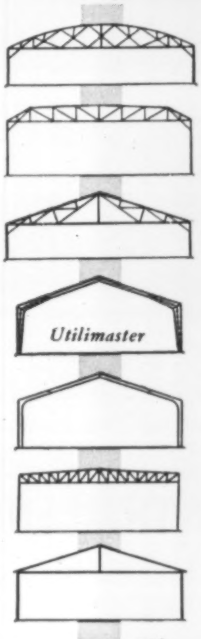
(Continued on page 72)

When you think of building... call the IDECO building consultant

When there's a building job coming up . . . industrial or commercial . . . it's the smart contractor or owner who wants to know how Ideco can fit in.

For many structures, particularly those with special requirements . . . a pre-designed Ideco steel building, custom-planned, may well provide the economical and permanent solution. Designed for fast low-cost erection, Ideco buildings are available in a wide variety of sizes and styles . . . can be readily expanded, or joined to existing structures, or even moved . . . are ready for use as a factory or warehouse, yet are adaptable ***inside and out*** to the creation of the finest offices, show-rooms, or store. All this Ideco flexibility is yours at a most reasonable cost per square foot.





When your plans call for fabricated structural steel, used in combination with other building materials . . . Ideco shop-fabricated trusses, columns, purlins and girts can speed your job, save you money.

If a standard "package" type structure will suit your requirements, Ideco's new "Utilimaster" is your answer. Available in 40', 50', 60' clear spans . . . a typical 50' x 100' "Utilimaster" can be erected in only 10 working days, with delivery to your site in 30 days. The "Utilimaster" tapered roof beam gives maximum strength with no interference from overhead beams or supporting columns. Investigate "Utilimaster" . . . the truly economical "package" building by Ideco.*

Whatever the building project . . . industrial or commercial . . . your Ideco Building Consultant is equipped to give you valuable help. Whatever the structure . . . all steel, or steel in combination with other building materials . . . let your Ideco Building Consultant show you how accurate, shop-fabricated parts go up easily, quickly . . . save time and money.

Get the IDECO story straight . . . send this coupon today!

*TM Reg. U.S. Pat. Off.

IDECO DIVISION Dresser-Stacey Company
Dept. E-2 **Columbus 8, Ohio**

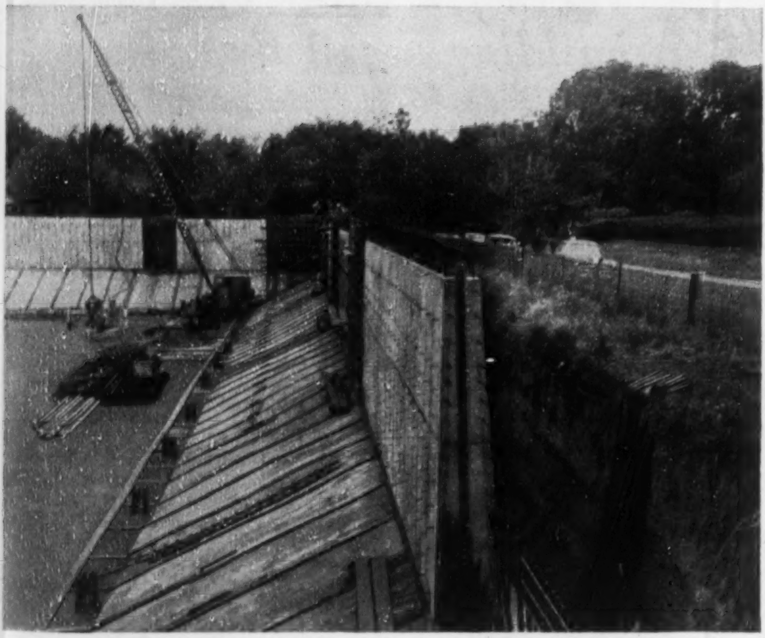
☐ *Please send your book "Steel Buildings"*
☐ *Send full details on the new "Utilimaster"*
☐ *Send name of nearest Ideco Building Consultant*

I am considering a building about _____ ft. x _____ ft.

to be used as ____________________.

My name, position, company, address are written in the margin.

(Advertisement)

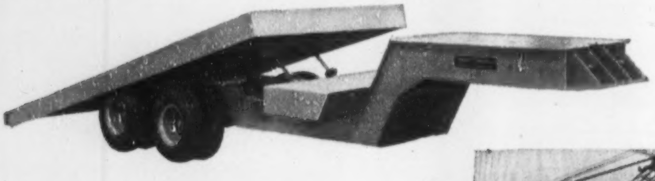


Water Reservoir, Omaha, Nebraska—De Buse Bros., Form Erectors

Symons Forms for Battered Walls

Battered walls are constructed similar to vertical walls, the only difference being a variation in tie lengths. Ties are placed when inside form is erected . . . outside wall is locked to ties with the same connecting bolts and wedges that bind panels together.

Send plans for your next job and get complete layout and cost sheet—no obligation. Symons Clamp & Mfg. Co., 4265 Dept. A-4 Diversey Avenue, Chicago 39, Illinois.



MODEL GPX-D — Tandem axle. Drop or flat deck. Cap. 16 through 35 tons.

MODEL PS — Single axle, spring mounted platform or float.

MODEL KS-F — Single axle flat bed semi.

MODEL SP—Jack over axle model.

YOU'LL SAVE TIME AND EQUIPMENT with a TRANSPORT TRAILER

MODEL GXTT 14 thru 22-ton capacities . . . Gooseneck type tilting platform cargo carrier equipped with two double-acting hydraulic cylinders cushion trailer platform when tilted, with or without load. Saves time—saves equipment—one man operation. Exclusive TRANSPORT tandem axle assembly gives both lengthwise and crosswise oscillation.

FOR ADDED SERVICE . . . Single or dual axle TRANSPORT front dollies convert semis to full trailers easily and quickly.

WRITE FOR COMPLETE INFORMATION

TRANSPORT TT TRAILERS INC.
CEDAR RAPIDS IOWA, U.S.A.

TRANSPORTATION ENGINEERING A SPECIALTY

relations to replace John Young, retired. L. F. Lawrence has been made advertising manager. W. M. Harbaugh has retired as chief engineer.

Careers . . .

• **Construction vice-president**—A. J. Mundy, Jr., has been made a vice-president of Brown & Root, Inc., Houston, Tex., engineering and construction firm. He joined the company in 1946 as head of design and construction for paving, utility systems and industrial work in the Houston area. At the time of his promotion he was division manager in charge of Canadian operations—and also supervisor of the Lone Star Steel Co.'s Texas expansion program.

• **Toll road admiral**—Rear Adm. Francis B. Old, commandant of the 9th U.S. naval district, has been appointed executive director of the Illinois Toll Road Commission. He will assume his new position next month when he retires from the Navy after 35 years' service.

• **Toronto turnover**—Clement E. Edwards has been appointed city engineer for Toronto, Ont., succeeding Leslie Allen, who will take over as metropolitan works commissioner. Edwards was the deputy city engineer.

• **New highway job**—Western Highway Institute has assigned Fred J. Myers to the job of highway engineer-economist with headquarters in San Francisco. Myers joined the U. S. Bureau of Public Roads in Washington nine years ago—was transferred to its western office in 1952.

• **Sales manager selected**—A. J. Belanger has been appointed sales manager of Pioneer Engineering Works, Inc., of Minneapolis (a subsidiary of Poor & Co., Chicago). He has been assistant sales manager since 1951 and prior to that served in the engineering department, principally on the design and development of the company's continuous process bituminous plants.

• **Chief engineer retires**—After more than 36 years' service with the Maryland State Roads Commission, William F. Childs, Jr., has retired as chief engineer. He will remain with the commission as advisory engineer in order to assist in the launching of the new 12-year road program (ENR Jan. 14, 1954, p. 26), which he helped conceive and plan. Norman M. Pritchett, locations engineer for the commission, becomes chief engineer.

NORFOLK, VA.
Moore's Bridges Water Purification Plant
(Completed in 1952)

WHITMAN, REQUARDT
& ASSOCIATES
Consulting Engineers
BALTIMORE, MD.

Under the impetus of war and defense activities, this major seaport, naval base, and shipbuilding center saw its population more than doubled during the decade 1941-1951, resulting in a serious overburdening of Norfolk's water supply system. One phase of the program to relieve this water deficiency is the Moore's Bridges Purification Plant, a multi-million dollar plant of the latest design. Together with other expansion projects, this plant will insure Norfolk of an adequate water supply for many years to come.

The Moore's Bridges Plant . . . under the management of Robert W. Fitzgerald, Sup't. of Water Supply . . . employs the last word in instrumentation and chemical feeding equipment. Builders Meters and Controls and Omega Feeders and Lime Slakers team up to make this a smooth-operating plant, capable of producing a finished water of uniform high quality. This attractive installation is by Lang Construction Co. of Hampton, Va. For information on Builders and Omega Water Works Equipment, address B-I-F Industries, Providence, Rhode Island.

BUILDERS METERS

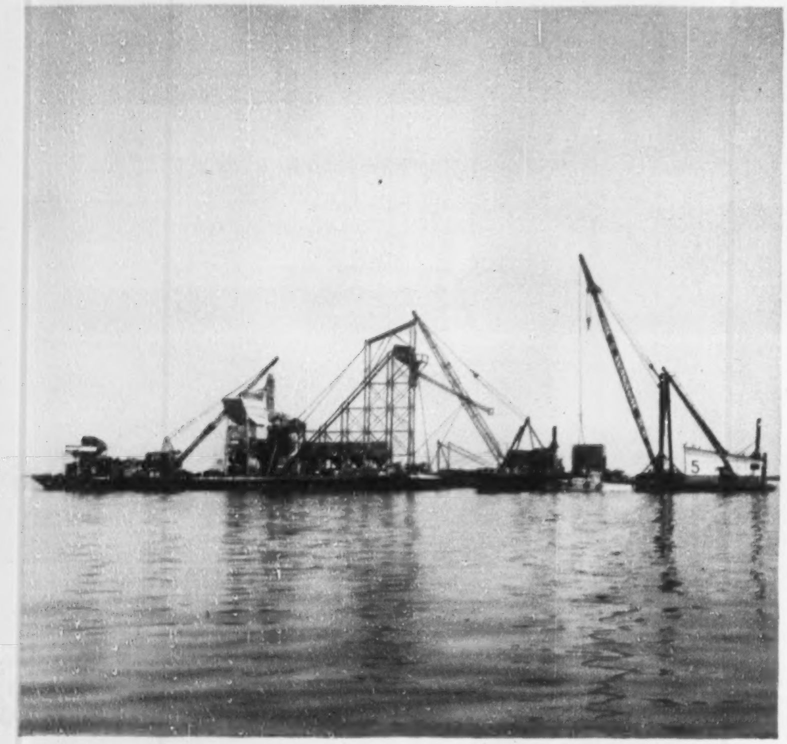
- Model RCB Filter Effluent Controllers
- Pneumatic Rate of Flow and Loss of Head Gauges
- 48" and 24" Venturi Tubes
- Type M Meters for Wash, Raw and Filtered Water
- Chronoflo Transmitters and Receivers for Flow and Level Telemetering
- 24" Dial Indicators in Operating Gallery

OMEGA FEEDERS

- Model 44-20A Belt Gravimetric Feeders for alum
- Model 44-20A Belt Gravimetric Feeders for quicklime
- Continuous Lime Slakers, 500# per hour capacity
- 9" x 15" Rotary Bin Gates
- Model 44-20A Belt Gravimetric Feeders with non-flood Rotolocks for carbon

BUILDERS B-I-F INDUSTRIES OMEGA

METERING • FEEDING • CONTROLLING EQUIPMENT



Floating Task Force Bridges Bay

"Operation Tampa Bay"—the building of 5 bridges and 15 miles of causeway crossing over Tampa Bay—required the planning and precision timing of a military maneuver.

A fleet of special ships and equipment had to be assembled. Each had a certain job to perform *on schedule.* For example, a specially designed floating concrete plant was built to deliver a steady flow of concrete into waiting forms.

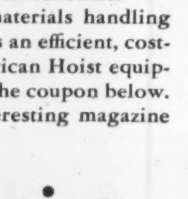
American equipment—barge-mounted American Revolver cranes, a Stiffleg Derrick and a diesel powered American Hoist—played an important part in keeping this $21,000,000 project on schedule.

On jobs of every kind, where fast, dependable materials handling equipment is needed, American Hoist equipment does an efficient, cost-cutting job. If you'd like to learn more on how American Hoist equipment can help you cut materials handling costs, mail the coupon below. We'll send you the "Crosby Clipper", a factual, interesting magazine full of illustrated on-the-job stories.

American Hoist
and DERRICK COMPANY

American Hoist & Derrick Company
St. Paul 1, Minnesota
Yes, I'd like to get the American CROSBY CLIPPER.
Also, send information on the following equipment:
— Hoists — Derricks — Cranes — Portable Elevators
— Wire Rope Clips

Name__________ Title__________
Firm__________
Address__________
City__________ Zone_____ State__________
10B



Send coupon today!

OBITUARIES

H. A. Van Norman, 78, longtime chief engineer and general manager of the Los Angeles Department of Water and power, died there Jan. 16. He helped guide the development of the great Los Angeles (Owens Valley) Aqueduct in the second decade of the century.

John Ellis Field, 86, appointed Colorado state engineer in 1897, died Jan. 12 at Denver. He was the second man appointed state engineer in Colorado. He left the state job to become engineer of sewer construction in Denver from 1901 to 1903. Later as project engineer for the Bureau of Reclamation he supervised construction of many irrigation projects, including the Pathfinder reservoir in Wyoming. He received a civil engineering degree from Yale in 1888.

Arthur J. Strong, 74, civil engineer with the Colorado Highway Department for 28 years, died in Denver on Jan. 6.

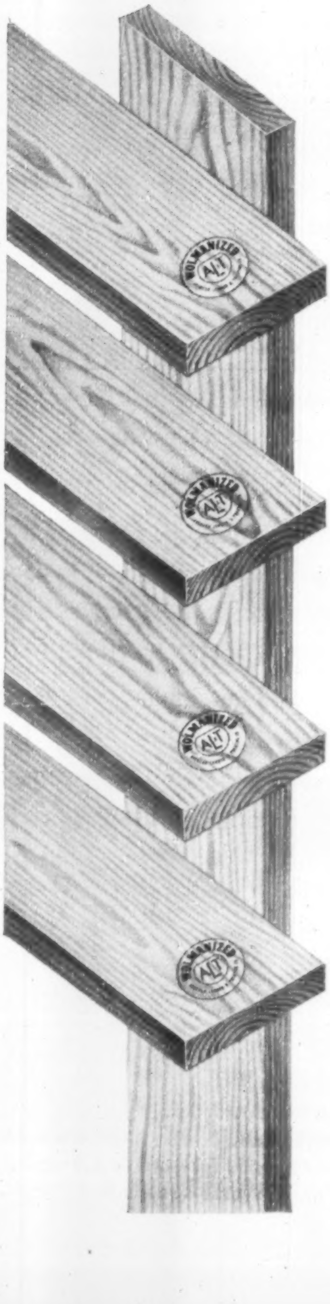
Lawrence A. Baruffaldi, 51, city engineer of Somerville, Mass., for the last 8 years and president of the A. Baruffaldi Construction Co., Somerville, died at Medford, Mass., on Jan. 1.

Robert V. Leeson, 82, bridge engineer and designer, died Jan. 7 at Phoenix, Ariz. He was consulting engineer for the Salt River Bridge between Phoenix and Tempe, planned the Rubion Bridge over the Santa Ana River at Riverside, Calif., and designed 29 other bridges in that river basin. He also worked on the design of Lakewood Village, housing development in the Long Beach area, and in 1906 designed a combination bridge and public market house in Monterey. He had been manager of Topeka Bridge & Iron Co., Topeka, Kan., for a number of years.

Leo B. Roberts, 66, engineer and authority on port, harbor and dock installations, died at Port Washington, N. Y., Jan. 16. A graduate of the University of Kansas, from 1906 to 1917 he was with the U. S. Geological Survey. In World War I he was with the 29th Engineers in France, preparing maps for the AEF. From 1924 to 1926 Colonel Roberts was with an Asiatic expedition of the American Museum of Natural History in the Gobi desert. Later he went to Ethiopia to locate the source of the Blue Nile

(*Continued on page 79*)

*Wolmanized
LUMBER
is *your* assurance



. . . Because only Wolmanized clean pressure-treated lumber gives you all four of these important advantages:

1 uniform treatment

Basic *Wolman salts are produced under a single exacting standard of control. And the pressure-treatment process by which Wolmanized lumber is made is the same throughout all 14 sources operating 24 pressure-treatment plants. Wherever you buy Wolmanized lumber, you can be certain of uniform undeviating standards of treatment.

2 application versatility

No matter what use you may have for treated lumber, Wolmanized lumber will serve your purposes . . . and serve them better. Deadly to rot and termites, Wolmanized lumber is clean, odorless, completely paintable, harmless to clothing and skin, and noncorrosive to metal fittings.

3 available anywhere

It is easy to specify Wolmanized lumber by name. And delivery is assured, since Wolmanized lumber is produced coast-to-coast and in Canada by 24 recognized and dependable wood-preserving plants. You are assured, too, by the fact that 47% of all clean pressure-treated lumber is Wolmanized lumber . . . nearly as much as the total output of all other sources combined. You are assured of a nationally recognized and accepted product with Wolmanized lumber.

4 proved dependability

Actual service records prove that Wolmanized pressure-treated lumber lasts years longer. Even under the most demanding conditions . . . such as "Wet Process" industries . . . Wolmanized lumber gives many times the service of untreated lumber, or lumber that has merely been dipped in preservative. For further information write: American Lumber & Treating Company, McCormick Building, Chicago, Illinois.

*"Wolman" and "Wolmanized" are registered trade names of American Lumber & Treating Co.

Pressure-Treated

Wolmanized

LUMBER

Help for Contractors in the bidding... and on the job

IN the past 15 to 20 years, the construction industry has kept earth-moving costs down in spite of rising labor and material costs. To do it, construction men have pioneered new earth-moving techniques that have put constantly increasing demands on machinery. That's why in today's tough competitive era a man needs modern equipment that gives him a versatile outfit, easy to move from job to job . . . equipment that enables him to bid successfully and work at a profit.

In an effort to cooperate fully to meet these demands, Allis-Chalmers has for years geared its progress to that of the earthmover himself . . . now offers him completely new designs like the HD-15 . . . a machine that takes advantage of even the most recent developments in tractor application.

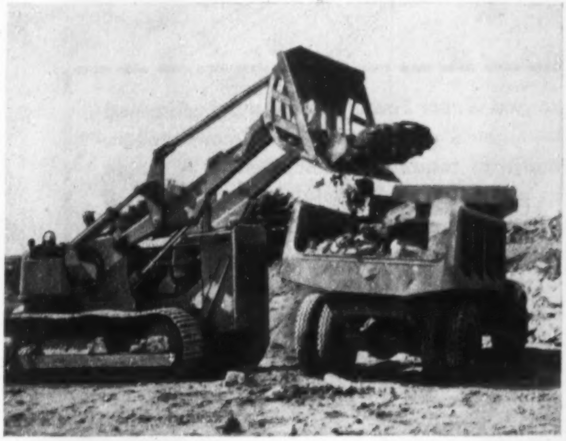
The design of the HD-15 also makes full use of new metals, new oils and greases, and the latest manufacturing processes. Existing models were not allowed to restrict Allis-Chalmers engineers . . . so they worked right from the ground up, matching part to part, assembly to assembly, and the entire tractor to its Allied equipment. As a result, the HD-15 offers new standards in ease of operation and service, as well as long-life performance. With outstanding balance characteristics, it handles both mounted and drawn equipment well, provides maximum flexibility for the wide variety of jobs so typical of today's construction work.

And as earth-moving competition gets keener, these design advantages become more and more important to you. We invite you to talk with your nearby Allis-Chalmers dealer to compare values . . . see for yourself how the HD-15 can be a big factor in helping you to win bids, stay on schedule and make a profit.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

HD-15
109 drawbar hp.
27,850 lb.
Six speeds forward to 5.8 mph.
Three reverse speeds to 4.5 mph.

Constant progress in earth-moving methods has been matched by such design advances as this HD-15 and its engine-mounted dozer . . . which were engineered and tested as a unit, right from the start.

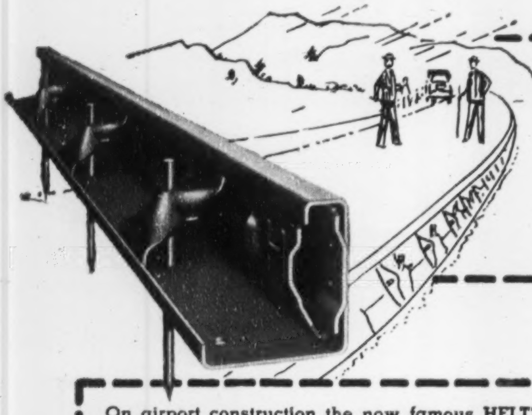


This HD-15 Tractor Shovel is a tool which introduced a new era of tractor usefulness . . . let contractors move from job to job easily and do traditional jobs in a better. faster way.

The improvements and refinements of really modern design take on new significance as competition gets keener. Extra yardage handled . . . or lubrication time saved means working more efficiently, more profitably.

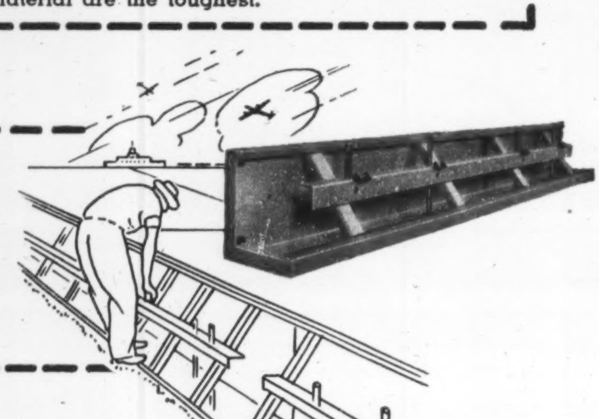
Here's How Leading Contractors Put an End to their Form Problems. .

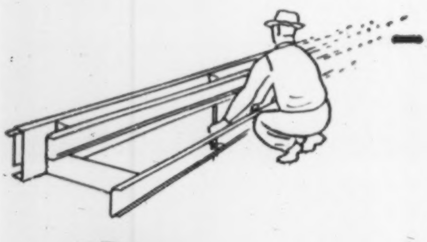
Here's the widest selection of steel forms available today. For more than 40 years, Heltzel has designed and built more types of forms than any other manufacturer. In fact, many form styles in general use today were developed by Heltzel engineers, who are constantly revising and improving their products to give you modern equipment that will do a better job faster.



Here's why the Heltzel Highway Form is so popular: It's extremely easy to set and align — The flanged base means extra strength — All welded construction and "Special Analysis" prime carbon steel make it tougher — It has a positive lock that really supports and transfers the load — The extra wide tread gives greater traction — Helco stakes made from rerolled rail material are the toughest.

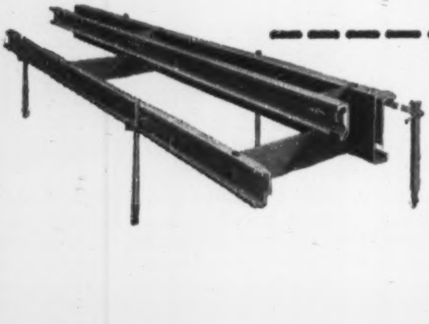
On airport construction the now famous HELTZEL DUAL-DUTY Form enables contractors to work two different slab thicknesses with a single set of forms — a real feature because runway and taxi strip or ramp areas can be poured without purchasing a second set of forms. The Heltzel Dual-Duty form is a sturdy, versatile form especially designed to give years of lowest cost service.





Heltzel Curb and Gutter Forms are the quickest-setting available — Light in weight, yet rigid in construction, they are made to required specifications. A single set of forms can be made adaptable to a variety of curb and gutter combinations. Flexible and rigid radius forms can be made to match.

Write today for further details. Ask for Bulletin L-20.



HELTZEL

STEEL FORMS

THE HELTZEL STEEL FORM AND IRON COMPANY, WARREN, OHIO and to study the feasibility of a dam at the outlet of Lake Tsana for the J. G. White Engineering Corp. In 1937-39 he was assistant chief engineer in the construction of the N. Y. World's Fair grounds at Flushing Meadow. His last major work was construction of the Marine Theater at Jones Beach, L. I., N. Y., which has a stage back of a small lake.

A. B. Hettrick, 49, who was a construction engineer for Stone & Webster helped build the American Cyanamid Co.'s Piney River plant near Lynchburg, Va., died at Union, N. J., Dec. 27.

Herman Jaeckel, 76, retired engineer of the U. S. General Land Office, died Jan. 2 in Denver, Colo. He began with the office in 1910 in cadastral surveys throughout Wyoming. In 1914 he became regional chief for Colorado and Wyoming. He retired in 1946 and was given a meritorious service award by the Department of Interior.

M. Carson Smart, 60, civil engineer in the Los Angeles engineering department since 1924, died Jan. 2. For 4 years before joining the department, he worked in the department of water and power. He was a graduate of Occidental College, Los Angeles, Calif.

William Herlihy, 71, general superintendent of equipment for the Herlihy-Mid-Continent Co., construction contractors, which he founded in 1924 with several brothers, died Dec. 31 in Chicago. He participated in the building of Chicago's subway, the Board of Trade Building, the Palmolive Building, Wacker Drive and many other public works and projects in the Chicago area.

Harry L. Maier, 76, retired chief engineer of Wilmington, Del., died Jan. 6. He began with the city in 1904. Originally engineer in charge of sewers, he became first assistant engineer in 1911, was made chief sewer engineer in 1918. He was one of 23 public service workers throughout the country who received the veteran service award of the American Public Works Association in 1940. He received a degree in civil engineering at the University of Delaware, Newark, Del., in 1911.

Arthur L. Kelly, assistant road engineer for the Province of Ontario, died Jan. 9 in Haileybury, New Brunswick, Canada.

Digs 4 to 5 Jobs Every Day

Hattendorf-Bliss meet heavy daily schedules of scattered jobs—regardless of soil and weather conditions—because their Clevelands *dig* them *on time, every time.*

Each extension crew of Hattendorf-Bliss, Inc., Cleveland, Ohio contractors, *completes* 4 or 5 jobs every day—trench dug, pipe laid, trench filled, job cleaned up. The jobs average 250-300 feet each, for 4, 6 and 8 inch pipe and require 10-15 miles of traveling through big-city traffic.

Hattendorf-Bliss have standardized on Clevelands for over 20 years. Currently the firm is working 9 Cleveland trenchers and backfillers for many types of trench work. In one 10-hour day, a Hattendorf-Bliss crew with one Cleveland trencher completed 11,000 feet—over 2 miles—of trench 19" wide and 30" deep for a 4" pipeline, including the crossing of a 20' stream.

"We go with Clevelands," say Hattendorf-Bliss, "because we know from experience they'll do every job we schedule them for. They stand hard usage and they're fast. Their full-crawler mounting and low bearing pressure protect lawns and sidewalks—we practically never have a damage claim. And because they're compact and easy to transport, we can really cover the distance between jobs with safety at good speeds."

Get the Full Story on **Clevelands** from Your Local Distributor

THE CLEVELAND TRENCHER CO.
"Pioneer of the Modern Trencher"
20100 ST. CLAIR AVENUE • CLEVELAND 17, OHIO

Spectacular!
YES!

but also significant

Loads like this have to be handled infrequently but when they are encountered they can't be permitted to stop operations.

If it's an Owen Bucket you can handle such unusual, especially difficult loads without fear of damage to the bucket.

Long experience has taught Owen Engineers where to build in the extra strength in additional material or *special* steel to withstand the abuse to which all buckets are subjected occasionally. That's why they render service for uncommonly long periods with remarkably low repair and maintenance expense.

AN ARMFUL AT EVERY GRAB

THE OWEN BUCKET CO.

Breakwater Ave., Cleveland 2, Ohio

BRANCHES: NEW YORK, PHILADELPHIA, CHICAGO, BERKELEY, CALIFORNIA, FT. LAUDERDALE, FLORIDA

BOOKS

Railway manual revised

MANUAL of the American Railway Engineering Association — Two volumes, loose-leaf, 2,000 pp. Published by the association, 59 East Van Buren St., Chicago 5, Ill. Price, to members $12; railroads and libraries $20; all others $35. Price includes supplement issued annually.

The big loose-leaf manual of the American Railway Engineering Association has been extensively revised and completely reprinted in a modified form that is designed to simplify its use and to facilitate the substitution of new material each year as the association's committees revise or add to their sections.

Because of its size, the new manual has been divided into two volumes. Volume I contains the association's standards, specifications and plans relating to roadway, ballast, ties, rail, track, buildings, wooden bridges and masonry. Volume II covers highway crossings and grade-separations; records and contract forms; water and sanitation services; yards and terminals; iron and steel structures; economics of railway location, operations and labor; wood preservation and waterproofing; waterways and harbors; maintenance-of-way work equipment; and clearances.

Individual chapters, specifications or drawings can be purchased from the association separately by persons having no need for the entire manual.

Reports and pamphlets

CONCRETE MIX DESIGN—Research Bulletin No. 2, Melbourne Technical College, Melbourne, Australia. Price 5s.

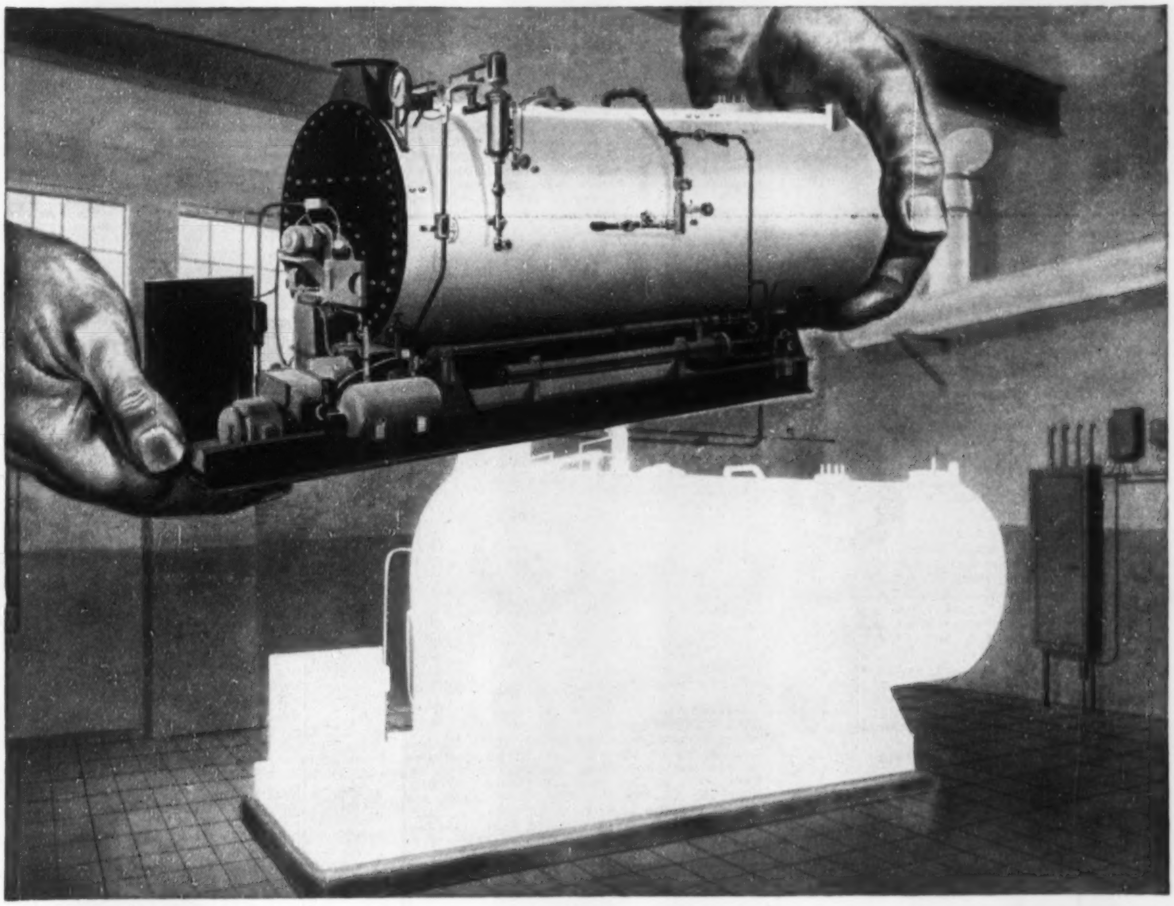
LAKE ERIE POLLUTION SURVEY: FINAL REPORT—Division of Water, Ohio Department of Natural Resources, Columbus, Ohio.

PROCEEDINGS OF THE OKLAHOMA INDUSTRIAL WASTES CONFERENCE—Nov. 19 & 20, 1953. Oklahoma Water, Sewage, & Industrial Wastes Conference, 3400 North Eastern, Oklahoma City 5, Okla.

SUGGESTED POST-ATTACK PRODUCTION MEASURES—Executive Office of the President, Office of Defense Mobilization, Washington 25, D. C.

RECOMMENDED PRACTICE FOR SELECTING PROPORTIONS FOR CONCRETE—Report of American Concrete Institute Committee 613. Publication No. 45, National Ready Mixed Concrete Association, 1325 E Street, N. W., Washington 4, D. C.

Here's why you get more...when you buy a Cleaver-Brooks Self-Contained Boiler



...only Cleaver-Brooks can offer you the experience gained from more than 20 years of pioneering . . . and more than 12,000 individual "packaged" boiler installations

---

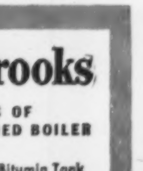
CLEAVER-BROOKS pioneering has been largely responsible for simplifying boiler buying . . . lowering costs of installation . . . delivering 80% guaranteed steam efficiency from every fuel dollar when firing with oil.

Boilers can be shipped as completely assembled and tested self-contained units, with auxiliaries as required. Installation involves minimum of time, construction and space. Usually connections only to steam, fuel, water lines and electrical service are needed. No special foundations are required. A short vent takes care of exhaust gases. Frequently, boilers are ready for use in a matter of *hours,* depending on availability of service lines.

Cleaver-Brooks, originators of the self-contained boiler, offers wider experience that counts in another important way. Qualified engineers help you plan steam plants tailored *exactly* for your needs. Carefully analyzed are loads, space and equipment arrangement. This not only helps you solve present steam needs, but adds flexibility for future expansion as well.

This application engineering, plus basically sound design and construction is your assurance of a full return from your boiler investment. When you specify a self-contained boiler — make sure it's a Cleaver-Brooks.

Cleaver-Brooks steam or hot water boilers for heating and processing are available for oil, gas or combination oil/gas firing. Sizes: 15 to 500 hp, 15 to 250 psi. Write for Catalog AD-100.



CLEAVER-BROOKS COMPANY
Dept. **A, 342** E. Keefe Ave.
Milwaukee 12, Wisconsin, U.S.A.

Cleaver-Brooks

**ORIGINATORS OF
THE SELF-CONTAINED BOILER**

**Steam Boilers • Oil and Bitumin Tank
Car Heaters • Distillation Equipment
Oil and Gas Fired Conversion Burners**

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Mass., Winthrop**—CABLE TESTING TANK—B.A. 2/2—Dist. P. Wks. office, First Naval Dist., 495 Summer St., Boston, cable testing tank, Fort Dawes, NOY 81134, Spec. 40150 (SF). Plans deposit $10.

† **N. H., Portsmouth**—BULK STORAGE, etc.—B.A. 2/9—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., bulk storage facilities and aircraft fueling sys., Air Force Base, ENG-19-016-54-60. $500,000. Plans deposit $10. Hayden, Harding & Buchanan, 31 St. James Ave., Boston, Mass., engrs. CD 12/27/51.

▲ **Conn., Greenwich**—B.A. 2/15—Greenwich Water Co., 12 Havermeyer Pl., Greenwich, earth dam and impounding reservoir on Mianus River and all appurtenances. $1,000,000. Plans deposit $25. CD 12/23.

▲† **Mass., Bedford**—AIRFIELD PAVEMENTS, UTILITIES—B.A. 2/19—U. S. Eng., 857 Commonwealth Ave., Boston, airfield pavements and utilities Hanscom Air Force Base, ENG-19-016-54-25, $5,000,000. Plans deposit $25. refundable. CD 12/28.

▲ † **Mass., Bedford**—DORMITORIES, etc.—B.A. On Or About 3/2—U. S. Eng., 857 Commonwealth Ave., Boston 15, four 3 story, 204x41 ft. airmen's dormitories, 1 story, 112x112 ft. mess bldg. (F.Y. 53) Laurence G. Hanscom Air Forcce Base, ENG-19-016-54-73, $1,500,000-$1,750,000. Plans deposit $25.

BIDS ASKED—BUILDINGS

R. I., **Newport**—SCHOOL—B.A. 2/3—City, Supt. Schools, City Hall, elementary school, Dexter St. $700,000. Plans deposit $75. Harkness & Geddes, Industrial Trust Bldg., Providence, archts. CD 6/25.

Conn., Southington—SCHOOL—B.A. 2/4—Town, School Bldg. Comn., Town Hall, school, Hatton Site, Springlake St., South End Elementary School addn. $400,000. Carl J. Malmfeldt & Assocs., 36 Pearl St., Hartford, archts. CD 8/11.

▲ **Mass., Brockton**—SCHOOL—B.A. 3/3—City, office J. W. Twohig, supt. Bldgs., City Hall, E. A. Nelson, supt. Schools, South Junior High School, $1,400,000. Plans deposit $50 refundable, Edmund I. Leeds & Assoc., Inc., 153 Brighton Ave., Allston, archt. CD 12/8.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Frank J. Shields, Inc., P. O. Box 302, Southbridge, Mass. LB **$337,448**, est. $351,000. hy. and bridge Auto Rte. 67, S 215 (6), Warren. Bids Jan. 12. CD 12/31.

BUILDINGS

LOW BIDS AND CONTRACTS

Fontaine Bros., Inc., 40 Hendrick St., Chicopee Falls, Mass. CA **$683,471.** elementary SCHOOL, Aldenfield Sect., CHICOPEE, MASS. City, School Dpt., 135 Grape St., Chicopee, Mass. CD 12/22, under LB.

Morris & Son Constr. Co., 219 Central St., Lowell, Mass. CA Est. **$776,000.** INDUSTRIAL BLDG., Lowell Industrial Park Auto Rtes. No. 3 and 110, LOWELL, MASS. Lowell Development & Industrial Comn., Mr. Cook, 24 Merrimack St., Lowell, Mass. C.B.S. Hytron Mfg. Co., lessee.

▲ **Vara Constr. Inc.**, 718 Huntington Ave., Boston, Mass. CA **$1,736,000.** HIGH SCHOOL, Broadway, SAUGUS, MASS. Town, W. E. Lawrence, town mgr., Town Hall, Saugus, Mass. CD 11/6, under LB.

Pitman & Brown Co., 40 Bridge St., Salem, Mass. CA Est. **$400,000.** WAREHOUSE and OFFICE, Mystic Valley Parkway, MEDFORD, MASS. U. S. Plywood Corp., 57 Mystic Ave., Somerville, Mass. Bids Dec. 21. CD 12/18.

O. **Ahlborg & Sons, Inc.**, 48 Molter St., Cranston, R. I. LB **$815,800** Alt. **$781,800.** est. $500,000. two elementary SCHOOLS, Pilgrim Park and Main Ave., WARWICK, R. I. City, Supt. Schools, City Hall, Warwick, R. I. Bids Jan. 12. CD 1/6.

Anderson-Fairoaks Constr. Co., 145 S. Marshall St., Hartford, Conn., LB, **$898,000**, MR 56 90-unit HOUSING, ENFIELD, CONN. Enfield Housing Auth., Green Valley, Enfield, Conn. Bids Jan. 12. CD 1/5.

Lorello & Nacaratta, 3 West St., Mystic, Conn., LB $964,250, H. & H. FA Proj. Ct 523C3D, HIGH SCHOOL, Frank Merritt Property, GROTON, CONN. **Town, S. B. Butler, supt. Fitch High School, Groton, Conn. Bids Jan. 13. CD 1/5**

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **Md., Fort George G. Meade**—ELECTRICAL UNIT SUB-STATION—B.A. 2/2—U.S. Eng., 24 St. and Maryland Ave., P.O. Box 1715, Baltimore, Zone 3, furnishing, del. main electrical unit sub-station, ENG-18-020-54-17. CD 5/16/51.

N. Y., **Idlewild**—SECOND FEEDER—B.A. 2/9—At office Chief Engineer The Port of New York Auth., 111 8th Ave., New York, Zone 11, Contr. NYA-380.001, furnishing, installing 5,000 volt feeder and equip. for navigation aids at Runway 4-22, New York International Airport. Plans deposit $50. CD 4/27/44.

N. Y., **Idlewild**—PAVING and HANGAR—B.A. 2/23—At office Chief Engineer The Port of New York Auth., 111 8th Ave., New York, Zone 11, Contr. NYA-370.002, constr. paving and furnishing and installation of utilities for Hangar No. 8, Plans deposit $25; Contr. NYA-370.003, constr. Hangar No. 8 at New York International Airport, Plans deposit $50. CD 4/27/44.

BIDS ASKED—BUILDINGS

▲ **Pa., Fallsington**—SCHOOL—B.A. 2/11—Pennsbury Joint School Dist., Fallsington, elementary school. $1,000,000. A. E. Micklewright, 72 Ewing St., Trenton, N. J., archt. CD 12/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

J. **Rich Steers**, 17 Battery Pl., New York, N. Y., CA **$497,000**, subaqueous rock excav. and bulkhead, 74th St. Power Plant, Manhattan Boro, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. J. G. White Eng. Corp., 80 Broad St., New York 4, N. Y., engr. Bids Dec. 18. CD 12/1.

NEW YORK—Jones Beach State Parkway Auth., Belmont Lake State Park, Babylon,

Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y., CA **$679,488**, Contr. No. 4, reconstr., etc. Southern State Parkway from Belt Parkway to Hempstead Lake, Nassau Co. Bids Dec. 22. CD 12/1.

Merritt-Chapman & Scott Corp., 260 Madison Ave., New York 16, N. Y., CA **$997,373.** Contr. LT-160.032, New York Marginal Wharf, Third Tube, Lincoln Tunnel at Marginal Way between W. 38 and W. 40 Sts., NEW YORK. Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Jan. 12. CD 1/14, under LB.

Harry Hershon Co., 1860 Broadway, New York, N. Y. CA **$548,376**, Contr. 1;

Plymouth Electric Constr. Co., Inc., 21 E. 40 St., New York, N. Y., CA **$96,462**, Contr. 2, electrical work for coal and ash handling structures for 74th St. Power Plant of New York City Transit Sys., NEW YORK, N. Y. **New York City Transit Auth.**, 370 Jay St., Brooklyn 1, N. Y. J. G. White Eng. Corp., 80 Broad St., New York 4, N. Y., engrs. Bids Dec. 28. **CD 12/15.**

▲† **U. S. Eng.**, 80 Lafayette St., New York 13, N. Y., cancelled bids to have been opened Apr. 22, air national guard facilities at Newark Airport, NEWARK, N. J. **$1,000,000-$3,000,000.** CD 12/24.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore,

F. P. Asher Jr. & Sons, Inc., 1715 West Exten., Annapolis, Md. LB **$543,849.** grading, drainage surf. 2.7 mi. dual hy. along U.S. Rte. 301 beginning just south of State Rte. 5 (Berry Rd. aat Waldorf) exten. southerly to point 0.2 mi. south of Billingsley Rd., Charles Co.;

William A. Harting, 2930 Hammonds Ferry Rd., Arbutus, Md., LB **$221,962**, grading, drainage, surf. 3.3 mi. U.S. Rte. 50, 1 mi. west of Chesapeake Bay Bridge at Sandy Point exten. intermittently to point about 1.5 mi. east of Ritchie Hy., Anne Arundel Co. Bids Jan. 12. CD 12/31.

BUILDINGS

LOW BIDS AND CONTRACTS

Neil R. Neilson, 18 Woodside Ave., Oneonta, N. Y., CA **$632,350**, general constr., Central SCHOOL, COOPERSTOWN, N. Y. Bd. Educ., Central School Dist. 1, Cooperstown, N. Y. Bids Dec. 16. CD 11/27.

▲† **U.S. Eng.**, 80 Lafayette St., New York 13, N. Y. cancelled bids to have been opened Feb. 4, LABORATORY, FORT TERRY, N. Y. **$5,000,000.** CD 12/24.

▲ **John W. Cowper Co., Inc.**, 405 Sidway Bldg., Buffalo 3, N. Y., LB **$1,408,900**, Senior HIGH SCHOOL, HAMBURG, N. Y. Bd. Educ., Union Free School Dist. 1, High School Bldg., Hamburg, N. Y. Bids Dec. 23. CD 12/17.

▲ **Beechwood at Massapequa Park Homes**, c/o Edwin S. Voorhis & Son, archts., 288 Sunrise Hy., Rockville Center, N. Y. Owner Builds. **$2,300,000.** 175 HOUSES, tract at Roosevelt Ave. and Walker St., MASSAPEQUA PARK, N. Y.

▲ **Diesel Constr. Co., Inc.**, 2 Park Ave., New York 16, N. Y., CA Est. **$5,000,000.** 11 story air-conditioned OFFICE bldg., 156 William St., NEW YORK, N. Y. Erwin S. Wolfson, 2 Park Ave., New York 16, N. Y. Emery Roth & Sons, 575 Madison Ave., New York 22, N. Y., archts.

▲† **U.S. Eng.**, 80 Lafayette St., New York 13, N. Y. cancelled bids to have been opened Mar. 16, 200-bed HOSPITAL, FORT MONMOUTH, N. J. **$1,000,000-$3,000,000.** CD 12/9.

▲ **Firth & Goodley Homes, Inc.**, 220 N. 7 St., Camden, N. J., Separate Contracts, **$2,000,000**, RESIDENTIAL DEVELOPMENT, 41 St. and Almond Ave., PENNSAUKEN, N. J. Dante J. D'Anastasio, 1815 Federal St., Camden, archt.

▲ **Emanuel M. Spiegel**, 25 Longfield Rd., New Brunswick, N. J. Separate Contracts. **$1,000,000.** RESIDENTIAL DEVELOPMENT, BRISTOL, PA. Erwin Gerber, 1180 Raymond Blvd., Newark, N. J., archt.

▲ **The Wynnewood Co.**, 370 Montgomery Ave., Merion, Pa. Separate Contracts. **$1,550,000**, RESIDENTIAL DEVELOPMENT, 2nd St., CHELTENHAM, PA. Jack Swerman, 405 Market St., Chester, Pa., archt.

Girsh Moss, Inc., 6456 Market St., Upper Darby, Pa. Sepaarte Contracts. **$900,000.** RESIDENTIAL DEVELOPMENT, Providence Rd., CHESTER, PA.

▲ **John McShain, Inc.**, 17 and Spring Garden St., Phila., Pa., LB **$6,647,200.** PRIVATE PATIENTS BLDG. and an OUTPATIENTS BLDG. at Temple University Medical Center, Broad, Park, Ontario and Tioga Sts., PHILA., PA. Temple University Hospital, Broad St. and Montgomery Ave., Phila., Pa. James A. Nolen, Jr., 1649 N. Broad St., Phila., Pa., archt. Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Ill., assoc. archts. CD 2/27/50.

▲ **John E. Healy & Sons, Inc.**, 707 Tanall St., Wilmington, Del., CA, **$1,000,000**, Pelleport Convalescent HOSPITAL, WILMINGTON, DEL. **Homeopathic Hospital, Memorial Hospital, Wilmington, Del. Bids Dec. 17. CD 11/30.**

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Georgia**—B.A. 2/2—U. S. Eng., P.O. Box 1169, Mobile 7, Ala., main earth dam for Buford Proj. on Chattahoochee River approx. 35 mi. northeast of Atlanta. Extended date. CD 12/17.

† **La., Shreveport**—ELECTRIC DISTRIBUTION SYSTEM—B.A. 2/11—U. S. Eng., 300 Broadway, Little Rock, Ark., Job No. Barksdale AFB 53-ACRP-AF, electric distr. sys., Item 12 Barksdale Air Force Base, Eng-30-050-54-17. CD 12/22, under LB.

BIDS ASKED—BUILDINGS

▲ **Ky., Louisville**—POLICE HEADQUARTERS—B.A. 2/16—City, City Hall, 4 story, penthouse, 128x200 ft., rein.-con., stone, masonry police headquarters, $2,000,-

(Continued on page 84)

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of **engineers or architects.**

BIDS ASKED (new announcements only). For full **calendar, see also** preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all **low bidder news** will be the final reports published **on the projects** invloved except where award is not **made to the low** bidder. In this case, a supple**mentary contract** award report will be published.

CONTRACTS AWARDED: Except awards to low bid**ders previously** reported in low bidder stage.

Dates shown are of issue in which last previous **report was published.**

Symbols and Abbreviations Include

†	**Federal Government**
▲	**Project of $1,000,000 or over.**
B.A.	**Bids Asked**
ENR	**Engineering News-Record**
CD	**Engineering News-Record Construction Daily**

INTERNATIONAL LEADS AGAIN...

NEWEST, FINEST BOGIE

IN THE 6-WHEEL FIELD

The new INTERNATIONAL bogie provides a new exclusive torque arm design straddle mounted at axle and frame, for greatly increased strength, and new rubber bushings on torque arms, equalizing beams and radius rods for reduced road shock, and elimination of 10 lubrication points. A new self-contained brake and cylinder unit cuts servicing costs, offers greatly increased protection from damage in off-highway operation.

10 rubber bushings
GENERAL EXCAVATING

Once again, INTERNATIONAL makes the big news in 6-wheel bogie design. Once again, the pioneer of 6-wheel development and 6-wheel sales leader for 19 straight years tops 'em all in features for efficiency, economy, and long life.

In today's INTERNATIONAL 6-wheelers you get everything that's new and everything that's best, plus such extra-value features as the famous, proved INTERNATIONAL power divider and third differential.

Ask your INTERNATIONAL Dealer or Branch for full facts . . . and a demonstration. You'll quickly see why —for off-the-road or over-the-highway—an INTERNATIONAL Truck with new INTERNATIONAL bogie is the world's best 6-wheel buy.

24 new 6-wheel models!

GVW ratings, 22,000 to 90,000 lbs. with new INTERNATIONAL bogie or trailing axle. Engines from 130 to 356 horsepower. Choice of gasoline or LPG power. Diesel engines available in models with GVW ratings of 30,000 lbs. and over. Transmissions, axle ratios for any needs. America's most complete truck line—170 basic models from ½-ton pickups to 90,000 lbs. GVW off-highway models.

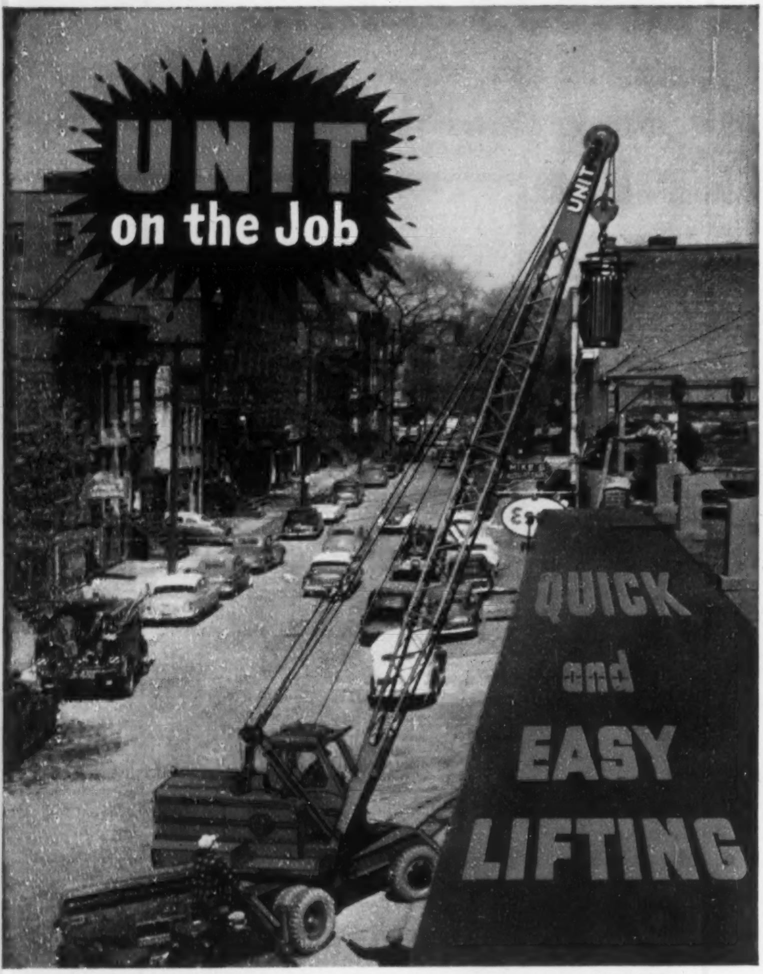
INTERNATIONAL HARVESTER COMPANY • CHICAGO

International Harvester Builds **McCORMICK**® Farm Equipment and **FARMALL**® Tractors . . . Motor Trucks . . . Industrial Power . . . Refrigerators and Freezers.

→ Get the News! Alex Dreier "Man on the Go," daily NBC Radio, sponsored by INTERNATIONAL Truck Dealers.

INTERNATIONAL® TRUCKS

"Standard of the Highway"



For SM-O-O-THER OPERATION you'll prefer UNIT 357 Mobile Crane equipped with TORQUE DRIVE. It's a machine that travels anywhere . . . works efficiently where space is limited. Controlled and operated by ONE man. Powered by ONE engine. Provides full-circle, fast-cycle operation. Easy hydraulic steering from within the FULL-VISION CAB. Promotes safety. For HIGH PRODUCTION and LOW MAINTENANCE get the facts regarding UNIT 357.

Write for Bulletin No. L-302.

UNIT CRANE & SHOVEL CORPORATION
6315 WEST BURNHAM STREET • MILWAUKEE 14, WISCONSIN, U. S. A.

1/2 or 3/4 YARD EXCAVATORS... CRANES UP TO 20 TONS CAPACITY
CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL

SHOVEL
DRAG
CLAM
UNIT
HOE
CRANE
MAGNET

All Models Convertible to ALL Attachments!

(Continued from page 82)

000. W. S. Arrasmith & Assoc., Lincoln Bank Bldg., W. C. Tyler, Heyburn Bldg., and Edw. Baldwin, Madrid Bldg., archts. E. R. Ronald & Assoc., 554 S. Third St., engrs. CD 11/10/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Regent Contg. Co.**, 1122 19th St. N.W., Wash., D. C., LB **$338,000**. steam generator plant, Naval Air Station, NOY 74835, OCEANA, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Hayes, Seay, Mattern & Mattern, 163 W. Onley Rd., Norfolk, Va., archts. Bids Jan. 12. CD 12/9.

▲† **Blount Brothers Constr. Co.**, Bell Bldg., Montgomery, Ala., CA, **$5,341,670**, constr. facilities for Air University, MAXWELL AIR FORCE BASE, ALA. U. S. Eng., P. O. Box 1160, Mobile, 7, Ala. CD 1/14, under LB.

▲ **R. P. Farnsworth & Co., Inc.**, 1515 S. Salcedo St., New Orleans, La. CA **$2,377,000**. Belle Chasse Tunnel, incl. tunnel ramps, approaches 1,667 ft. long each, 22 ft. wide, under Algiers Navigation Canal, State Rte. 31, Plaquemines Parish, LOUISIANA. State Hy. Dpt., Highway Office Bldg., Baton Rouge, La. CD 12/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Vipperman Constr. Co., Beckley, W. Va., CA, **$925,653**, Contr. 43, combined RESTAURANT and SERVICE STATION BLDGS., with facilities, fuel tanks, piping, sewage disposal sys., sidewalks, landscaping etc., Bluestone, Beckley and Morton, WEST VIRGINIA. W. Va. Turnpike Comn., 1340 Wilson St., Charleston 5, W. Va. Bids Jan. 5, awarded Jan. 14. CD 1/12, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

Mich., Detroit—FERRY DOCK—B.A. 2/2—At office G. R. Thompson, city engr., Guardian Bldg., Zone 26, Contr. PR-119, removal of existing dock, constr., timber, concrete ferry dock at Gabriel Richard Park, east of McArthur Bridge, for Dpt. Parks & Recreation, Bernard B. Lasky, pres., 1214 Griswold St., Detroit, Mich

Mich., Detroit—B.A. 2/9—City, Bd. Water Comrs., 735 Randolph St., No WS-60, 4,575 ft. 48 in. water mains, 36 in. cone type valves furnished, West Eight Mile Rd. Plans deposit $10 refundable, L. G. Lenhardt, ch. engr. CD 11/11/48.

▲ **Mich., Benton**—B.A. 2/17—Benton Twp., Elizabeth M. Piersall, clk., 1056 Territorial Rd., Benton Harbor, Contr. 1, 6 sewage lift stations, 2 complete lift and meter stations, 2 meter stations. Plans deposit $10 refundable; Contr. 2, North Sect. 36,500 lin. ft. 8-to 15-in. sewer pipe lines, appurtenances; Contr. 2, Euclid Center Sect., 38,000 ft. 8-to 12-in. sewer lines, appurtenances. Plans deposit $15 each refundable; Contr. 2, south sect., 113,000 ft. 8-to 21-in. pipe lines, manholes, appurtenances; Contr. 2, East Sect., 99,500 lin. ft. 8-to 21-in. sanitary sewers, manholes, appurtenances. Plans deposit $40 each refundable. R. W. Petrie & Assoc., 557 Paw Paw Ave., Benton Harbor, engrs. CD 2/12/53.

▲ **Mich., Benton**—B.A. 2/22—Benton Twp., Elizabeth M. Piersall, 1056 Territorial Ave., Benton Harbor, Contr. 3, water structures, 4 pumphouses, booster station, elevated tank fdns. Plans deposit $10 refundable; Contr. 4, Euclid Center Sect., 37,400 ft. 4-to 16-in. c.i. water mains, hydrants, appurtenances; Contr. 4, water sys., north sect., 37,900 ft. 4-to 8-in. water mains. Plans deposit $15 each refundable; Contr. 4, East Sect., 152,000 ft. 4-to 16-in. c.i. water mains, valves, hydrants, appurtenances; Contr. 4, South Sect., 120,500 ft. 4-to 12-in. c.i. water mains, incl. valves, hydrants, appurtenances. Plans deposit $40 each refundable; Contr. 5, deep wells, incl. drilling test wells, 4 final gravel packed wells also production pumping tests; Contr. 6, erect 3 steel elevated water storage tanks, two 500,000 gal. cap. each, one 200,000 gal. cap. Plans deposit $10 each refundable. R. W. Petrie & Assoc., 557 Paw Paw St., Benton Harbor, engrs. CD 2/12/53.

† **Illinois**—B.A. 3/3—U. S. Eng., 420 Locust St., St. Louis, 2, Mo., repairing borrow pit scour and constr. spur levee Prairie Du Rocher, Illinois and vicinity (Edgar Lakes & Prairie Du Rocher & Modoc Drainage and Levee Districts), Proj. Item VII-A Randolph Co., Serial No. CIVENG-32-065-54-62. CD 12/8/52.

▲ **Illinois**—B.A. 3/5—Comrs. Vermillion River Outlet Drainage District in Counties of Iroquois, Ford and Livingston, Court House, Paxton, dredging Vermillion River from Station 0 plus 00 to Station 1231 plus 37. $1,069,000. Plans deposit $75. Tract A, Pitzen, Paxton, consult. engr.

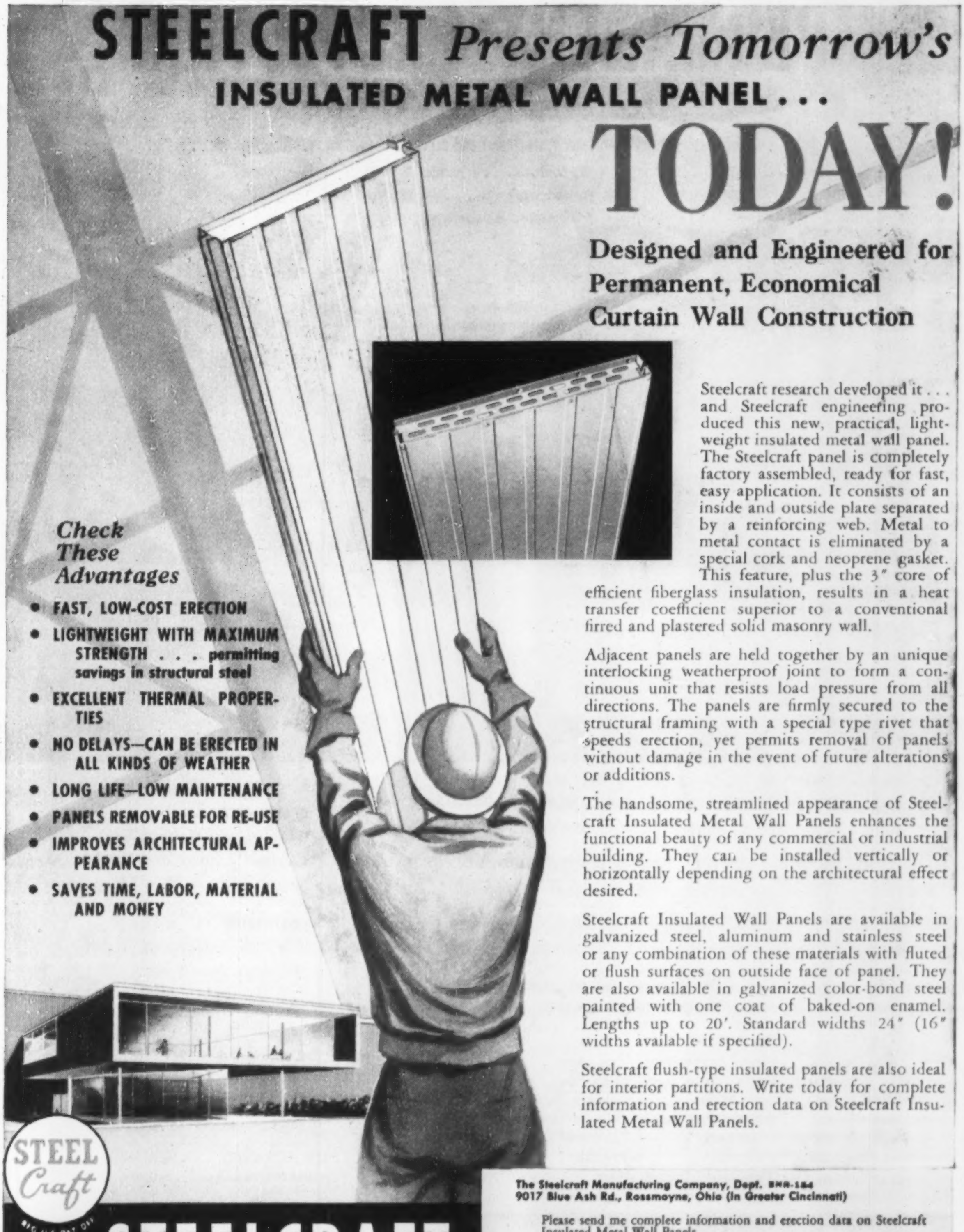
BIDS ASKED—BUILDINGS

Ill., Chicago—PARKING GARAGE—B.A. 2/8—City, City Hall parking garage, La Salle St. on Chicago River $850,000. DeLeuw Cather & Co., 150 N. Wacker Dr., Zone 6, engrs. Graham Anderson Probst & White, 80 E. Jackson Blvd., Zone 4, archts. CD 2/27.

▲ **Wis., Milwaukee**—HOSPITAL—B.A. 2/11—Evangelical Deaconess Hospital, 1821 W. Wisconsin Ave., Zone 3, 2 wings, 4 story, bsmnt., 40x200 ft., 40x70 ft. steel, concrete, brick hospital addn. $1,750,000 Magney, Tusler & Setter, 202 Foshay Tower, Minneapolis, Minn., archts. CD 5/7/52.

▲ **O., Cleveland**—HOSPITAL—B.A. About 2/15—Cleveland Clinic Foundation, C. M. Taylor, ex. dir., 2020 E. 93 St., Zone 6, 2 story, bsmnt., 158x247 ft., other 4 story, 54x162 ft. Hospital Unit No. 4. Total est.

(Continued on page 87)



STEELCRAFT *Presents Tomorrow's*

INSULATED METAL WALL PANEL . . .

TODAY!

Designed and Engineered for Permanent, Economical Curtain Wall Construction

Steelcraft research developed it . . . and Steelcraft engineering produced this new, practical, lightweight insulated metal wall panel. The Steelcraft panel is completely factory assembled, ready for fast, easy application. It consists of an inside and outside plate separated by a reinforcing web. Metal to metal contact is eliminated by a special cork and neoprene gasket. This feature, plus the 3" core of efficient fiberglass insulation, results in a heat transfer coefficient superior to a conventional firred and plastered solid masonry wall.

Adjacent panels are held together by an unique interlocking weatherproof joint to form a continuous unit that resists load pressure from all directions. The panels are firmly secured to the structural framing with a special type rivet that speeds erection, yet permits removal of panels without damage in the event of future alterations or additions.

The handsome, streamlined appearance of Steelcraft Insulated Metal Wall Panels enhances the functional beauty of any commercial or industrial building. They can be installed vertically or horizontally depending on the architectural effect desired.

Steelcraft Insulated Wall Panels are available in galvanized steel, aluminum and stainless steel or any combination of these materials with fluted or flush surfaces on outside face of panel. They are also available in galvanized color-bond steel painted with one coat of baked-on enamel. Lengths up to 20'. Standard widths 24" (16" widths available if specified).

Steelcraft flush-type insulated panels are also ideal for interior partitions. Write today for complete information and erection data on Steelcraft Insulated Metal Wall Panels.

Check These Advantages

- **FAST, LOW-COST ERECTION**
- **LIGHTWEIGHT WITH MAXIMUM STRENGTH . . . permitting savings in structural steel**
- **EXCELLENT THERMAL PROPERTIES**
- **NO DELAYS—CAN BE ERECTED IN ALL KINDS OF WEATHER**
- **LONG LIFE—LOW MAINTENANCE**
- **PANELS REMOVABLE FOR RE-USE**
- **IMPROVES ARCHITECTURAL APPEARANCE**
- **SAVES TIME, LABOR, MATERIAL AND MONEY**

STEEL
Craft
REG U S PAT OFF

THE STEELCRAFT
MANUFACTURING COMPANY
Rossmoyne, Ohio (In Greater Cincinnati)
West Coast Division, 14330 Bessemer St., Van Nuys, Calif.

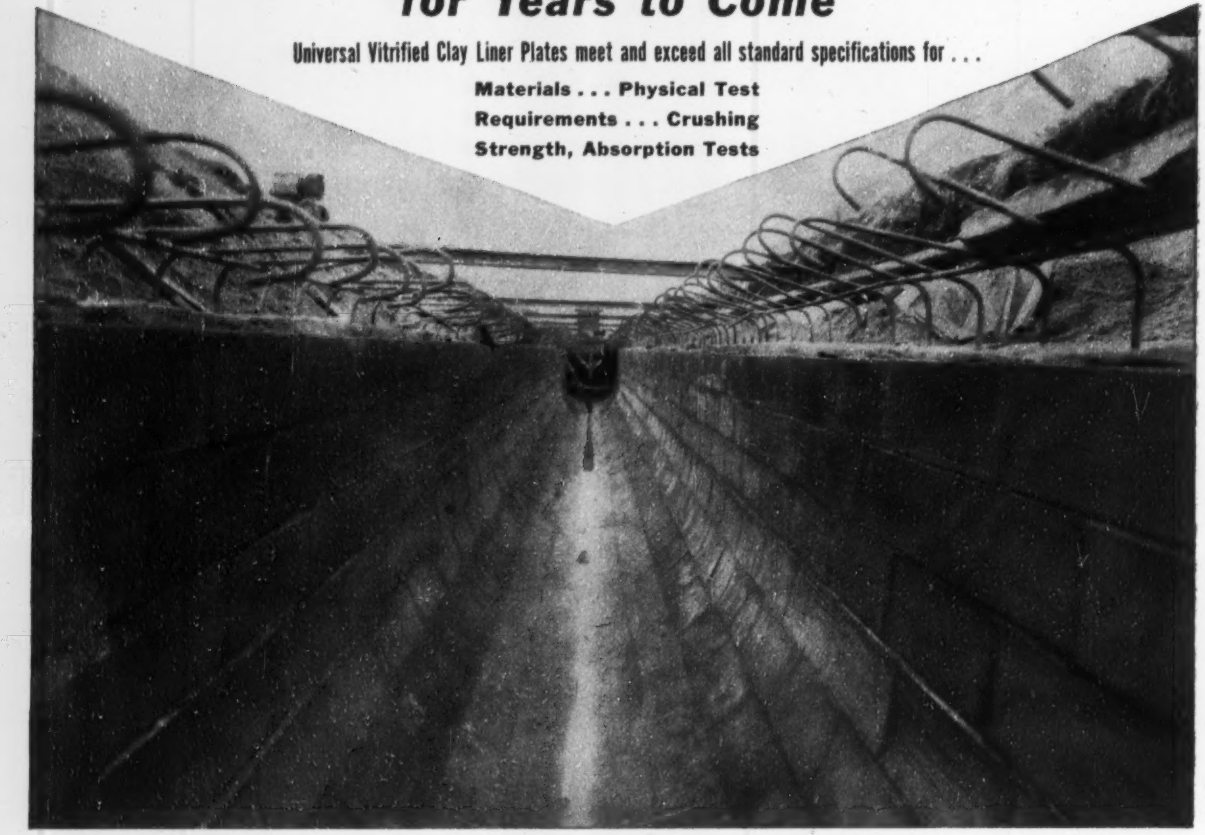
The Steelcraft Manufacturing Company, Dept. BMR-184
9017 Blue Ash Rd., Rossmoyne, Ohio (In Greater Cincinnati)

Please send me complete information and erection data on Steelcraft Insulated Metal Wall Panels.

Name__________ Title
Company__________
Address__________
City__________ Zone_____ State_____

PERMANENT PROTECTION

for Years to Come



Universal Vitrified Clay Liner Plates meet and exceed all standard specifications for . . .

Materials . . . Physical Test
Requirements . . . Crushing
Strength, Absorption Tests

Universal Liner Plates are impervious to acid and chemical wastes, to sewage and sewage gasses — both above and below the flow line.

They prevent decomposition and disintegration of concrete by destructive liquids, suspended solids or gasses.

Made in Standard Flat, Standard Curved, Grooved and Chamfered . . . easy to install.

Write for literature.

SPRING CREEK BASIN . . .
Borough of Brooklyn, N. Y.
Fairfield Autumn and Vandalia Avenues
60 inch Vitrified Plate Lined Sewer

CONTRACTOR . . .
T & T Contracting Co.
Brooklyn, New York

PRODUCTS

Sewer Pipe (Vitrified)
Sewer Pipe (Concrete)
Vitrified Liner Plates
Tylox Flexible Rubber Coupled Vitrified Pipe
Aerodrane Filter Block
Slipseal Sewer Joint
Segment Sewer Block
Meter Boxes
Ship Lap Wall Coping
Septic Tanks
Drain Tile
Flue Lining
Stove Pipe
Chimney Tops
Chimney Pots
Fire Brick
Fire Clay
Vitrified Clay Plate Lined Concrete Pipe

SALES OFFICES:

BALTIMORE, MD.—HALETHORPE BRANCH—Box 7769. Tel. Elkridge 790
PHILADELPHIA, PA.—P. O. Box 30, BRISTOL, PA. Tel. Bristol 5571
Tel. Enterprise 6015
CINCINNATI, OHIO—P. O. NEWTOWN, OHIO—Box 215. Tel. Locust 7846

FACTORIES:

BALTIMORE, MD., CINCINNATI, OHIO, NEW PHILADELPHIA, OHIO,
PALMYRA, OHIO (2), PHILADELPHIA, PA., UHRICHSVILLE, OHIO (2)

UNIVERSAL SEWER PIPE CORPORATION
UNITED STATES CONCRETE PIPE CO.

• *GENERAL OFFICES* • 1500 Union Commerce Building • CLEVELAND 14, OHIO

(Continued from page 84)

$4,000,000. Ellerbe & Co., E505 First Natl. Bank Bldg., St. Paul, Minn., archts. CD 10/27.

▲ **Ill., Chicago**—NURSES HOME—B.A. 2/16—Alexian Brothers Hospital, 1200 Beldon St., nurses home, school and recreation bldg. $1,000,000. Schmidt Garden & Erikson, 104 S. Michigan Ave., Zone 3, archts. CD 4/30.

▲ **Mich., Ann Arbor**—LABORATORY—B.A. 2/16—University of Michigan, Plant Service Bldg., Forest and North University Ave., 3 story, brick, steel, concrete Phoenix Laboratory, North Campus, $1,000,000-$1,200,000. Plans deposit $50 refundable. Cornelius L. T. Gabler & Assoc., 924 Hammond ldg., Detroit, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **L. Walker Fauber Co.**, 319 Claremont Ave., Ashland, O., LB, **$578,857**, water mains;

Hammond Iron Co., Warren, Pa., LB, **$84,300**, water standpipe;

Bueschina Co., 219½ E. Berry St., Fort Wayne, Ind., LB, **$795,300**, expanding filtration plant, BLOOMINGTON, IND. City Waterworks Dpt., City Hall, Bloomington, Ind. Bids Dec. 29. CD 11/23.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Epstein Constr. Co.**, 4294 Mayfield Rd., South Euclid 21, O. Own Forces. **$2,000,000**, 14 two story, brick APARTMENTS, 168 unit apartment development, Babbitt Rd. and E. 239 St., EUCLID, O. Weinburg & Teare, Citizens Bldg., Cleveland 14, O., archts. CD 12/1/49.

▲ **Eastwood Estates, Inc.**, 3778 E. 116 St., Cleveland, O. Owner Builds. **$5,000,000** 300 ranch style HOMES, 7 new streets, WARRENSVILLE HEIGHTS, O. The C. W. Courtney Eng. Co., The Arcade, Cleveland, O. engr.

▲ **General American Transportation Co.**, 135 La Salle St., Chicago, 90, Ill., CA, Est. **$2,000,000**, asphalt REFINERY, 50 million gal. annual capacity, storage, pipe lines, research laboratory, HAMMOND, IND. Allby Asphalt & Refining Corp., Hammond, Ind. Walten W. Moore, Allied Materials Corp., Branf Bldg., Oklahoma City, Okla., engrs.

▲ **Aldridge Constr. Co.**, 1902 Monterav St., Chicago, Ill., Own Forces, **$1,500,000**, 90 HOMES on south side of CHICAGO, ILL. W. E. Ramsey, 10142 S. Hoxie St., Chicago, Ill., archt.

▲ **Chas. B. Johnson & Son**, 122 S. Michigan Ave., Chicago 3, Ill. CA **$1,000,000**, AUDITORIUM AND CLASSROOM, Chestnut and La Salle Sts., CHICAGO, ILL. Moody Bible Institute, 820 N. La Salle St., Chicago, Ill. Bids Dec. 10. CD 11/25.

Fred Berglund & Son, 8410 S. South Chicago Ave., Chicago, Ill., CA. **$500,000**, brick lumber yard WAREHOUSE, CHICAGO, ILL. Dant & Russell Co., 11901 Ave. "P" St., Chicago, Ill. Barancik & Conte, 919 N. Michigan St., Chicago, Zone 11, archts. Awarded Jan. 12.

Coath & Goss, 5103 W. Lake St., Chicago, Ill., LB, **$661,040**, Walter Luther HIGH SCHOOL, MELROSE PARK, ILL. Lutheran High School Assoc., 77 W. Washington St. Chicago 2, Ill. Bids Jan. 6. CD 12/2.

▲ **A. L. Jackson Co.**, 161 E. Erie St., Chicago 11, Ill., CA, **$4,000,000**, grocery WAREHOUSE North Ave. at 21 St., MELROSE PARK, ILL. Jewel Food Stores, 3617 S. Ashland St., Chicago, Ill. Bids Jan. 11, awarded Jan. 12. CD 12/29.

▲ **Bessing Funk & Steinke**, 3508 W. Irving Park Ave., Chicago, Ill., Own Forces, **$3,000,000**, 160 HOMES area of Oakton and Greenwood Aves., PARK RIDGE, ILL.

▲ **O. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich. CA, **$1,490,000**. 1 story, brick, concrete FACTORY mfg. unit, DETROIT, MICH. The Budd Co., 1241 Charlevoix St., Detroit, Mich.

▲ **Green Brothers**, 19436 James Couzens St., Detroit, Mich. Owner Builds. **$3,400,000**. 320 single brick HOMES, Dix, Eureka and Churchill Sts., ECORSE, MICH.

Sorenson Gross Co., Flint, Mich. CA **$649,672**, brick, steel George V. Gundry Elementary SCHOOL, FLINT, MICH. City, W. Eldon Garner, secy. Bd. Educ., Flint, Mich. CD 1/13, under LB.

Casteel Realty Co., 1601 E. Eleven Mile Rd., Royal Oak, Mich. Owner Builds. **$800,000**. 90 frame HOUSES, East Barrett St. north of Ten Mile Rd. in John R. Sect., HAZEL PARK, MICH.

▲ **Joseph Jaffa**, 2289 National Bank Bldg., Detroit, Mich. Owner Builds. **$1,000,000**. SHOPPING CENTER incl. department store, super market, various other stores with parking facilities, Fort and Elizabeth Sts., TRENTON, MICH.

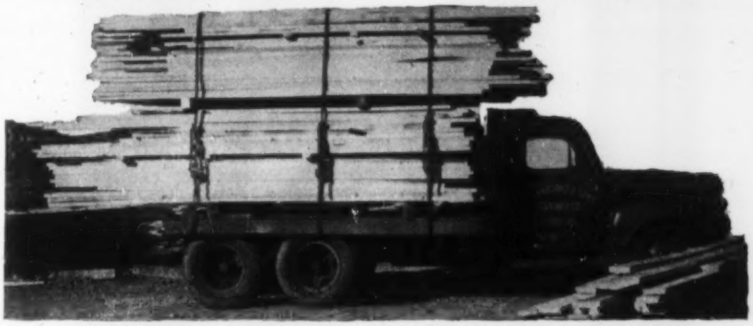
▲ **York Building Co.**, 9110 Monica St., Detroit, Mich. Owner Builds. **$1,100,000**. 100 single brick HOMES, Bridge Meadows Development Maidstone, Edsel Dr. section, TRENTON, MICH.

Edward G. Monahan, Inc., 395 E. Lawn St., Detroit, Mich. CA Est. **$500,000**. 2 story, bsmnt., brick, masonry parochial SCHOOL, UTICA, MICH. St. Lawrence R. C. Parish, John F. O'Hara, chn. Bldg. Comn., Utica, Mich. Arthur Des Rosiers, 15850 James Couzens St., Detroit, Mich., archt. CD 2/13.

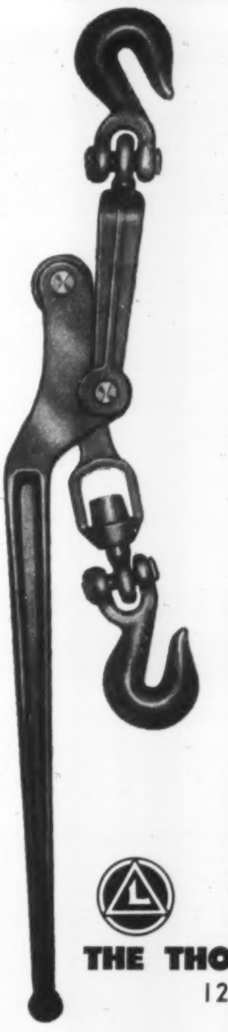
▲ **Steinle-Wolfe, Inc.**, 2533 Hastings St., Detroit, Mich. CA **$1,401,271**, general contract;

L. L. McConachie Co., 2240 Mt. Eliot St., Detroit, Mich. CA **$405,520**. mechanical contract brick, steel, concrete Lincoln Junior High SCHOOL, WYANDOTTE, MICH. City, Bd. Educ., Wyandotte, Mich. Bids Dec. 29. CD 11/30.

There's never been anything like



LAUGHLIN'S
Load Binder



BRAND NEW
new design, new economy, new convenience.

MORE USEFUL
one binder does the work of two.

GREATER SAFETY
drop forged strength plus non-slip locking.

HERE'S THE STORY:

The new LAUGHLIN LOADBINDER is a sturdy, drop forged, heat treated steel unit available in two sizes, each of which can use four different hook sizes. You buy only **one** handle assembly, attach two Laughlin clevis grab hooks to fit your chain. Change hooks in a jiffy with pliers or screwdriver.

Stronger, too, because swivel tongue swings on end of slotted jaw, won't spread under strain. Safe, because a positive cam lock action keeps it shut.

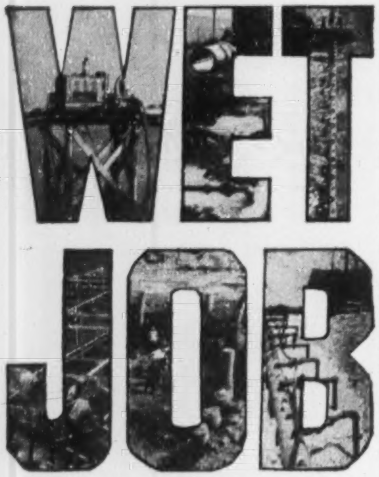
#1 Binder: U.T.S. 22,000 Lbs. Hook sizes: ¼", 5/16", ⅜", 7/16"
#2 Binder: U.T.S. 32,000 Lbs. Hook sizes: ⅜", 7/16", ½", ⅝"

Laughlin Clevis Grab Hooks are stocked by leading Industrial Supply, Wholesale Hardware, Oil Field, and other Distributors. Ask your distributor for information about the new loadbinder, or write for 4-page folder. It has complete description, specifications and users' comments.

For a complete listing of 1500 types and sizes of Laughlin wire rope and chain fittings, ask also for our Catalog 155.

THE THOMAS LAUGHLIN COMPANY
125 Fore Street, Portland, Maine

IF IT'S A



PLAY SAFE! ASK FOR A
DEWATERING ANALYSIS BY

GRIFFIN
WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

foundations
piling
underpinning
shoring
cofferdams
special services

CATALOGUE ON REQUEST

SPENCER, WHITE & PRENTIS INC

10 EAST 40TH STREET, NEW YORK 16, N. Y.
Detroit: Hammond Bldg. • Chicago: 134 So. La Salle St.
Washington, D. C.: Tower Bldg.
•
SPENCER, WHITE & PRENTIS OF CANADA, LTD.
Toronto: 700 Bay St.
Montreal: 2052 St. Catherine St., West

WEST OF MISSISSIPPI

BIDS ASKKED—HEAVY CONSTRUCTION

† **South Dakota**—B.A. 2/16—City, sewage disposal St., Omaha, Neb., protection floating booms at Gavins Point Reservoir Proj., Inv. 25-066-54-115.

BIDS ASKED—BUILDINGS

Minn., Briceiyn—SCHOOL—B.A. 2/4—Bd. Educ., V. Thompson, clk., grade school, $565,000, Haarstick, Lundgren & Assoc., W. 1391 First National Bank Bldg., St. Paul, archts. CD 6/3/52.

Ia., Carroll—SCHOOL—B.A. 2/9—Kuemper Catholic High School, Carroll, school addn. $600,000. J. E. Loftus, Omaha, Natl. Bank Bldg., Omaha, Neb. CD 7/15.

▲ **Tex., Houston**—HIGH SCHOOL—B.A. 2/17—Houston Independent School Dist., 1300 Capitol St., 1 and 2 story, 159,000 sq. ft. consisting 5 connecting bldgs., masonry Foster Place Junior High School, Yellowstone and Scott Sts., $1,750,000. Plans deposit $50. Eugene Werlin & C. H. Kiefner Assocs., 3501 Buffalo Dr., archts. Milton McGinty, 2424 Ralph St., co-ord. archt. Walter P. Moore, 2 Pinedale St., and R. L. Jenkins, 4316 Blossom St., engrs. CD 2/20.

Tex., Conroe—HOTEL—B.A. 2/23—Conroe, Community Hotel, Inc., Conroe, 2 story, 35,000 sq. ft. brick, concrete lift-slab type constr. hotel. $500,000. Stone & Pitts, 1872 Calder St., Beaumont, archts. CD 8/4.

▲ **Tex., Austin**—DORMITORIES, etc.—B.A. 2/24—University of Texas, Admin Bldg., Austin, 6 story, 40x230 ft., and 1 and 2 story, 50x50 ft. rein.-con. stone, brick exterior walls, 276-capacity womens' dormitory, 3 electric passenger elevators, etc. $1,000,000, Jessen, Jessen, Millhouse & Greeven, 2816 N. Guadalupe St., Austin, assoc. archts. and Mark Lemmon, 1210½ Main St., Dallas, superv. archt. R. L. Rolfe, 2401-A Bryan St. and Zumwalt & Vinther, Mercantile Sec. Bldg., Dallas, engrs.; 4 story, partial bsmnt., 62,700 sq. ft., concrete, brick exterior, 320-capacity mens' dormitory, $935,000; 1 story partial bsmnt., 16,401 sq. ft. rein.-conc. brick exterior, cafeteria, $345,100, Page, Southerland & Page, 602 West Ave., Houston, archts., and Robert L. White, c/o owner, archt. Robert J. Cummins, Bankers Mortgage Bldg., Houston and Zumwalt & Vinther, Merc. Sec. Bldg., Dallas, engrs. CD 7/10 and 10/7, respectively.

▲† **Tex., Mineral Wells**—HOSPITAL, etc.—B.A. About 3/11—U.S. Eng., 100 W. Vickery St., Fort Worth, 3 story, 90,000 sq. ft. rein.-con., masonry, hospital and boiler plant, grade beam and pier fdn., Inv. No. Eng-41-443-54-30. $1,000,000-$2,250,000. CD 7/16/51.

SOON LETS CONTRACT—BUILDINGS

▲ **Tex., Houston**—OFFICE—Old National Insurance Co., 2505 Travis St., soon lets contract 6 story, 75,000 sq. ft. bsmnt., office. $1,000,000. Duryea & Elkins, 1917 Westheimer St., archts. Walter P. Moore, 2 Pinedale St., and Howard & Johnson, 4926 Travis St., engrs. CD 7/10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Secor Building Co.**, 20 N.E. 26 St., Oklahoma City, Okla. CA **$864,463**. HOSPITAL at Sedalia Air Force Base, SEDALIA, MO. U.S. Eng., 601 Davidson Bldg., Kansas City, Mo. CD 1/8, under LB.

▲ **Utility Contractors**, Inc., 610 N. Main St., Wichita, Kan. CA **$1,399,975.** sewerage imprvs., West Side main sewer, Sanitary Sewer No. 22, Contr. 1, WICHITA, KAN. City Hall, Wichita, Kan. CD 1/5, under LB.

▲ **Southwestern Bell Co.**, 401 N. Broadway, Oklahoma City, Okla., Owner Builds. **$1,500,000.** underground cable from El Reno to Duncan and Lawton, Stephens Co., OKLAHOMA. Awarded Jan. 14. CD 8/9/51.

▲† **Ottinger Constr. Co.**, Box 9295, Fort Worth, Tex. LB **$1,950,248,** Base Bid;
Robert E. McKee, General Contractor, Inc., Box 562, El Paso, Tex., LB **$1,930,105,** Alt Bid seven 3 story 25,250 sq. ft. masonry dormitories; two one story masonry 16,970 sq. ft. each mess and admin. bldgs., Abilene Air Force Base, Inv. No. Eng-41-443-54-11, ABILENE, TEX. U.S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Jan. 14. CD 1/5.

Russ Mitchell, Box 8068, **Houston, Tex.**, LB **$686,000**, est. $200,000. sewage treatment plant, AMARILLO, TEX. City, City Hall, Amarillo, Tex. Bids Jan. 12. CD 12/16.

F. R. Orr Constr. Co., 4414 Vine St., Denver, Colo., CA, **$530,747**, 2 story with clock tower structural steel frame administration bldg. addn. at airport, DENVER, COLO. City and Denver Co., City and County Bldg., Denver, Colo. Bids Dec. 15, awarded Jan. 11. CD 1/4, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Swenson Constr. Co.**, 3305 Terrace St., Kansas City, Mo. CA **$3,238,000.** AUDITORIUM PLAZA GARAGE, KANSAS CITY, MO. City, c/o Reed McKinley, dir., Dpt. P. Wks., Kansas City, Mo. CD 1/5, under LB.

▲ **M. J. McNulty, Jr.**, 3517 Sand Springs Rd., Tulsa, Okla. Purchase and Hire. **$3,500,000.** 424 HOUSES in Loveview Addn., TULSA, OKLA. Donald H. Honn, 106 E. 25 St., Tulsa, Okla., archt. Awarded Jan. 8.

Pontiac Refining Co., Robstown Rd., Corpus Christi, Tex. Purchases, Day Labor. **$550,000.** imprv. REFINERY, CORPUS CHRISTI, TEX. CD 8/27/52.

James T. Taylor & Son, Inc., Box 255, Fort Worth, Tex., LB **$435,520**, general constr. conversion Paschal High School into a Technical SCHOOL, FORT WORTH, TEX. Fort Worth Independent School Dist., 409 E. Weatherford St., Fort Worth, Tex. Bids Jan. 7. CD 12/1.

Bellco Industrial Eng. & Piping, 3612 Clinton Dr., Houston, Tex., LB **$648,225**, est. $250,000. constr. OXCBX Unit, Phase 1, incl. 58x152 ft. COMPRESSOR SHELTER and CONTROL ROOM, 22x42 ft. STORAGE BLDG., brick, steel frames constr., appurtenances, earthwork, concrete work, foundation work, etc. TEXAS CITY, TEX. Carbide & Carbon Chemicals Div. of Union Carbide & Carbon Corp., 437 MacCorkle Ave. S. W., South Charleston, W. Va. CD 12/15.

Platt Rogers, Inc., 2400 Wood Ave., Colorado Springs, Colo. LB, **$655,400,** est. $500,000 1 story 46,000 sq. ft., brick, stone structural steel SHOPPING CENTER, COLORADO SPRINGS, COLO. Three Eagles Co., First National Bank Bldg., Colorado Springs, Colo. CD 12/18.

Gerald H. Phipps, Inc., Box 2068, Denver, Colo., CA, **$308,146**, general contract 1 story, 150x300 ft. ASSEMBLY PLANT and 50x300 ft. ADMINISTRATION and ENGINEERING DPT., DENVER, COLO. Stanley Aviation Corp., Municipal Airport, Buffalo, N. Y. Bids Dec. 28, awarded Jan. 7. CD 1/4.

▲ **Olson & Hart,** 323 Santa Fe St., Denver, Colo., CA, **$554,000,** general contract, Anna Laura Force Grade SCHOOL:
Harvey Stenmark, 285 S. Williams St., Denver, Colo., CA, **$556,656,** general contract, Jakob Schmitt Grade SCHOOL, DENVER, COLO. School District No. 1, City and Denver Co., 414 14 St., Denver, Colo. Bids Dec. 23, awarded Jan. 6. CD 1/12, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲† **California**—FUEL PIPE LINE—B.A. 2/18—Dpt. Navy, San Diego, 30 mi. aviation fuel pipe line from Norwalk to El Toro Marine Base, Orange Co. $3,000,000. Plans deposit $100.

BIDS ASKED—BUILDINGS

▲ **Calif., Los Angeles**—SCHOOL—B.A. 2/5—Los Angeles Bd. Educ., 1425 S. San Pedro St., South Reseda Junior High School, Reseda. $2,000,000. Parkinson, Powelson, Briney, Bernard & Woodford, 410 N. La Brea St., archts. CD 11/3/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Westinghouse Electric Corp.**, U. S. Natl. Bank Bldg., Portland, Ore., CA **$771,346**, hydro-electric transformer at Big Eddy Sub-station, Wasco Co., OREGON. Bonneville Power Admin., 827 N. E. Oregon St., Portland, Ore. CD 9/4, under CA.

CALIFORNIA—Div. Hys., Sacramento, Calif.
Piombo Constr. Co., 1571 Turk St., San Francisco, Calif., LB, **$809,970**, grading, wid'n, 2 pedestrian overheads and 3 bridge widening 1.3 mi. El Dorado Co. Bids Jan. 6. CD 12/18.

† **D. & H. Constr. Co.**, 2131 Fulton Ave., Sacramento, Calif. and **M. H. Hasler Constr. Co.**, 13702 E. Garden Grove St., Santa Ana, Calif., LB, **$839,485,** backfill mud mines at ENG-04-353-54-45, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Jan. 12. CD 12/29.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **MacDonald Building Co.**, 1517 S. Tacoma Way, Tacoma, Wash., CA, **$1,773,908**, general contract for new STATE OFFICE, OLYMPIA, WASH. State Capitol Com., Olympia, Wash. Bids Dec. 22. CD 12/30, under LB.

▲ **J. C. Boespflug Constr. Co.**, 1912 4 Ave. S., Seattle, Wash., CA, **$1,709,762**, gypsum board PLANT and plaster mill, SEATTLE, WASH. Kaiser Gypsum Co., c/o Permamente Cement Co., 5975 E. Marginal Way, Seattle, Wash. Bids Jan. 7. CD 1/13, under LB.

▲ **Allison-Honer** Constr. Co., Box 84, Santa Ana, Calif., LB, **$3,269,488,** HIGH SCHOOL, Ramona St. in San Gabriel, ALHAMBRA, CALIF. Alhambra City School District, 1601 N. Garfield Ave., Alhambra, Calif. Bids Jan. 11. CD 12/16.

▲ **Guy E. Hall**, 310 30 St., Bakersfield, Calif., LB **$1,106,609,** AUDITORIUM, MUSIC and FIELD BLDGS. at Arvin High School, BAKERSFIELD, CALIF. Kern County Union High School and Junior College District, 312 Bernard St., Bakersfield, Calif. Bids Jan. 11. CD 12/29.

J. A. McNeil Co., 3115 W. Mission Rd., Alhambra, Calif., CA, **$750,000,** 64x400 ft. concrete SCHOOL DORMITORY, LOS ANGELES, CALIF. Mount St. Marys College, 12001 Chalon Rd., Los Angeles, Calif. S. B. Barnes, 2234 Beverly Blvd., Los Angeles, Calif., engrs., and Barker & Ott, 4334 W. Pico Blvd., Los Angeles, Calif., archts.

M & K Corp., Financial Center Bldg., San Francisco, Calif., LB, **$911,500,** Silver Ave. Elementary SCHOOL, SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif. Bids Jan. 13. CD 12/29.

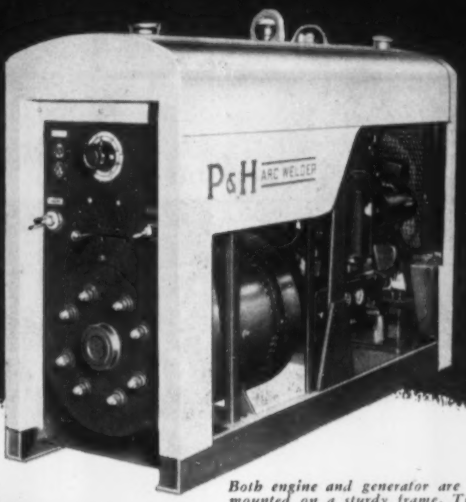
CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Ottawa—QUARTERS, etc.—B.A. 2/2—Dpt. National Defence AIR, Ottawa. concrete, concrete block, brick officer's quarters and officers' mess, Uplands Airport. H. I. Stricker, 40 E. Eglinton St., Toronto, engr. CD 4/20.

(Continued on page 91)

NEMA-rated at 200 amps.
—but pulls 300 amps.!
Runs all day on one tank of gas!



Both engine and generator are mounted on a sturdy frame. Two-wheel mounting also available.

New P&H WN-250 Engine-Driven Arc Welder

Here you get everything you've ever wanted in an engine-driven welder — including cost-cutting features you don't get from any other.

(1) The P&H WN-250 has more capacity than other welders with the same rating.

(2) It has a full 20-gallon gas tank.

(3) It is powered by a direct-connected 180GLU Waukesha gasoline engine, water-cooled and built for heavy duty. Not an automotive light-weight. Available with electric starter.

(4) P&H idling device establishes the rated speed of 1800 rpm as soon as the arc is struck. This speed is maintained for a set period after the arc is broken.

(5) P&H Dial-lectric Control provides stepless heat adjustment over the entire high or low range.

(6) It has pre-lubricated bearings, to reduce the need for servicing and insure longer life.

(7) Auxiliary AC power supply (1KVA) permits floodlighting and running power tools.

You're money ahead with a P&H WN-250. Ask your P&H representative or distributor for all the facts. Or, write for bulletin.

P&H WELDING DIVISION
HARNISCHFEGER CORPORATION
4404 West National Avenue
MILWAUKEE 46, WISCONSIN

Continuous 8-hour welding test demonstrates the extra stamina of the P & H WN-250

You can't beat welding performance like this. In a recent test, the P&H WN-250 operated continuously for 8 hours on a 70% duty cycle.

A 5/32" electrode was used with 300 feet of cable. There were 250 amps. at the electrode. So that test would be continuous, three welding operators were used. When one got tired, another took over. All used the drag technique with a 6010 rod—which is as close to a short circuit as you can get.

At the end of 8 hours, the P&H generator was still cool. And the WN-250 was still rarin' to go—the weldors were worn out, but not the machine.

the **P&H** *Line*

TRUCK CRANES · DIESEL ENGINES · POWER SHOVELS · PREFABRICATED HOMES · ELECTRIC HOISTS · SOIL STABILIZERS · WELDING EQUIPMENT · OVERHEAD CRANES

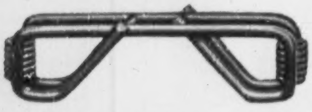
25958

DEPENDABLE CONCRETE FORMING WITH . . .

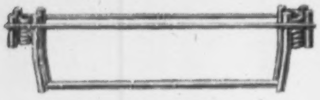
SNAP TIES

STANDARD COIL TIES

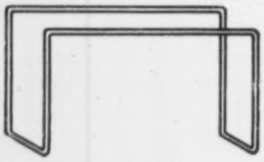
CONE-FAST COIL TIES



STANDARD HANGER FRAMES

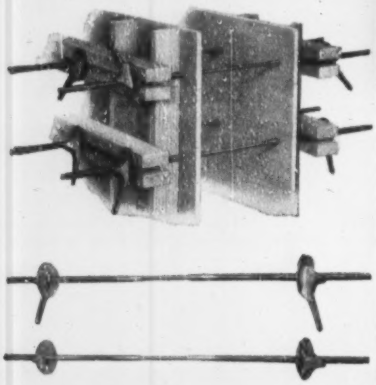


SPECIAL HANGER FRAMES



WIRE BEAM SADDLES

"PICK-UP" INSERTS FOR "TILT-UP" SLABS



TILT LOCK CLAMPS

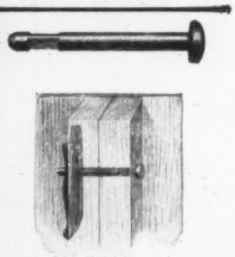
. . SUPERIOR
CONCRETE ACCESSORIES

Here you see several of the many various types of Form Ties, Anchors and other concrete accessories which SUPERIOR'S many years of know-how and dependability have produced to meet rigid job specifications.

Every item in the SUPERIOR line is specifically designed to provide the most efficient forming method for ordinary foundations, engineering structures, watertight walls and architectural concrete.

When you plan form work, Superior's experienced engineers are always available to prepare suggested layouts of form work as well as complete estimates and quotations. For complete details request a copy of our 56-page catalog.

ROD CLAMPS

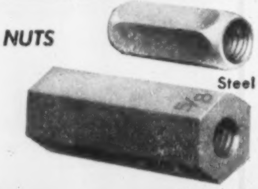


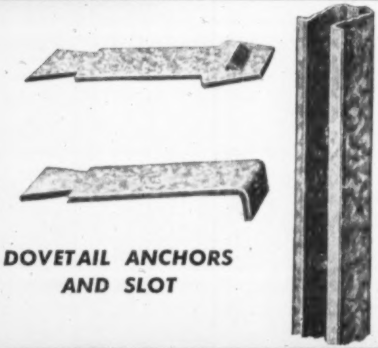
PANEL LOCK BOLTS

ADJUSTABLE SCREED CHAIRS

CONE NUTS

HEX. NUTS





DOVETAIL ANCHORS AND SLOT

SUPERIOR CONCRETE ACCESSORIES, INC.

4110 Wrightwood Avenue, Chicago 39, Illinois

New York Office — 1775 Broadway, New York 19, N.Y. *Pacific Coast Plant* — 2100 Williams St., San Leandro, Calif.

(Continued from page 88)

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Northwestern Iron Works Ltd., Regina, Sask., CA, $740,000 pipe supply for 12½ mi. water pipe line from Buffalo Pound Lake to Moose Jaw;

Poole Constr. Co. Ltd., 7 Hamilton St., Regina, Sask. CA, **$235,313**, installing 12½ mi. water pipe line from Buffalo Pound Lake to Moose Jaw, MOOSE JAW, SASK. Municipality, Moose Jaw, Sask.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **C. T. Lount Constr. Ltd.**, 211 Graham Bldg., Winnipeg, Man., CA, **$1,225,000**. stucco HOUSING, FORT GARRY, MAN. MacGillivray Park Ltd., 211 Graham Blvd., Winnipeg, Man.

▲ **Canadian Constr. Co.**, 33 Viewmount Ave., Toronto, Ont. Owner Builds. **$2,000,000**, 700 APARTMENTS, Yonge St. in Hoggs' Hollow Area, TORONTO, ONT. E. I. Richmond, 455 Spadina Ave., Toronto, Ont., archts.

▲ **E. G. M. Cape & Co.**, 620 Cathcart St., Montreal, Que., CA, Est. **$2,500,000**, package foods PLANT, Martin Grove Rd. and Rexdale Rd., in suburban area on 56-acre site, TORONTO, ONT. General Mills, Inc., 400 Second Ave. S., Minneapolis, Minn., U.S.A. H. Smelzer, c/o owner, ch. engr. CD 1/15.

▲ **Hughes Constr. Co. Ltd.**, 365 Rogers Rd., Toronto, Ont., CA, **$2,500,000**, 6 story, bsmnt., stone face Treasury DEPARTMENT Bldg., underground passage to other govt. offices, Grosvenor St., TORONTO, ONT. Dpt. P. Wks., Parliament Bldgs., Toronto, Ont. Bids Oct. 26. CD 9/25.

▲ **Metropolitan Housing Corp.**, 1417 Bleury St., Montreal, Que. Owner Builds, **$1,950,000**, 300 one story, bsmt., 26x48 ft., concrete, brick BUNGALOWS, Cote St. Luc Rd., Cote St. Luc, MONTREAL, QUE. Gabriel Jarry, 7275 Querhes Ave., Outremont, Que., archt.

Proposed Projects

WATER SUPPLY

▲ **Calif., La Canada**—Foothill Municipal Water Dist., 341 Foothill Blvd., plans by A. L. Soudereger, 448 S. Hill St., Los Angeles, 10 mi. 24- to 39-in. water transmission main, 3 reservoirs, 2 pumping plants, **$1,750,000**. James M. Montgomery, 15 N. Oakland St., Pasadena, consult. engr.

▲ **Calif., Walnut**—Walnut Valley Water District, 1539 Brea Canyon Cutoff Rd., transmission line and appurtenances. **$3,000,000**. Perliter & Soring, 448 S. Hill St., Los Angeles, consult. engrs.

SEWERS, WASTE DISPOSAL

▲ **Fla., West Palm Beach**—City, sanitary sewer imprvs. **$3,150,000**.

▲ **Mass., Springfield**—City, Streets & Engineering Dpt., Municipal Bldg., sewers, storm drains, Phase No. 1-10, trunk sewers, **$2,040,000**; Phase 11 sewer and water drains, **$1,000,000**.

Mich., Inkster—Inkster Village, etc. garbage and rubbnsh incinerator plant to serve Inkster, Garden City and North Dearborn Twps. **$959,996**. Robert H. Stellwagen, 629 Buhl Bldg., Detroit, consult. engr.

Mich., Wayne and Nankin—Wayne and Nankin Twps., Town Clerk, Nankin, joint ownership garbage and rubbish incinerator plant, **$720,000**. Robert H. Stellwagen, 629 Buhl Bldg., Detroit, consult. engr.

Mo., Nevada—City, sewers and sewage plant, **$675,000**. E. T. Archer & Co., Railway Exchange Bldg., Kansas City, Mo., consult. engrs. CD 6/2.

▲ **Utah, Ogden**—Ogden City Corp., Ogden, sewage disposal plant, **$1,300,000**. Templeton & Link, 500 Dooley Bldg., consult. engrs. CD 1/31/47.

BRIDGES

▲ **FLORIDA**—State Road Dpt., Tallahassee,

Pinellas Co.—Bridge No. 3 over Tampa Bay, **$11,500,000**. J. E. Greiner Co., 1201 St. Paul St., Baltimore, Md., and Reynolds, Smith & Hills, 227 Park St., Jacksonville, Fla., consult. engrs. CD 8/19/49.

STREETS AND ROADS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,

Onondaga Co.—Onondaga Lake West Shore Development Proj. limited access thruway, type highway from new parking lot opposite State Fair Grounds northward to thruway interchange at Rte. 48. **$3,000,000-$4,000,000.**

highway from State Fair Grounds southward to city of Syracuse, **$2,000,000**.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,

Union Co.—constr. 3.54 mi. highway on Rte. 15 from north of Lewisburg to near New Columbia. **$1,200,000**. S. P. Longstreet, c/o owner, ch. engr.

EARTHWORK, WATERWAYS

▲ **Calif., Richvale**—Richvale Irrigation District, Richvale, water and power development on Middle Feather River, incl. 6 dams, 23 mi. tunnels, 5 hydro-electric power stations, etc. **$90,000,000**. Frank E. Bonner, 1 Montgomery St., San Francisco, in collaboration with Alvin L. Harry, secy. and manager of district, consult. engrs.

▲ **Que., Sherbrooke**—City, dam and power house at Bromptonville Power Site, **$4,000,000**. Cote, Lemieux, Carigan & Borque, 165 Wellington St. N., consult. engrs. J. C. Cote, c/o owner, engr. CD 10/23/44.

LATIN AMERICA

▲ **Ecuador**—Republic of Ecuador, plans improving airports at Quito and Guayaquil. **$4,800,000**. $2.5 million loaned by Import-Export Bank. U. S. Civil Aeronautics Admin., 17 St. and Constitution Ave., N. W., Wash. 25, D. C., U. S. A. gave technical assistance on preliminary plans.

▲ **Mexico, Mexico City**—Sria. de Salubridad y Asistencia, Mexico City, plans by Enrique Yanez, Emparan, 35, Mexico City, 12-unit general hospital. **$7,000,000**. CD 11/12/47.

PUBLIC BUILDINGS

▲ **Calif., Decoto**—SCHOOL—Decoto Elementary School District, 601 H St., school, **$1,730,000**.

Calif., Richmond—SCHOOL—Richmond City Elementary School District, 1108 Bissell Ave., plans by Donald Hardison & Assocs., 225 Broadway, Grand Elementary School, **$500,000**.

Calif., Santa Ana—SCIENCE, etc.—Santa Ana Bd. Educ., 1415 French St., plans by Harold Gimeno, 1416½ N. Main St., 2 story, rein.-con. science bldg. and gymnasium. **$869,000**. CD 6/15.

Calif., Selma—SCHOOL—Selma Union High School District, Selma, **$734,946** bond election May 21, new high school.

▲ **Ind., Bloomington**—POWER HOUSE—Indiana University Bd. Trustees, J. A. Franklin, Administration Bldg., 1 story, brick, structural steel, rein.-con. university power house, **$2,500,000**. Ammerman-Davis & Stout, Ind. Pythian Bldg., Indianapolis, Zone 4, consult. engrs.

Ky., Bowling Green—SCHOOL—City plans by Otis & Grimes, Tyler Bldg., Louisville, negro school, 2nd and High Sts. **$500,000**.

▲ **Mass., Westfield**—DORMITORY. etc.—State, Dpt. Educ., 200 Newbury St., Boston, plans by Abbott Assoc., Inc., 13 State St., Boston, 1713-13, dormitory, educational and admin. unit, State Teachers College, **$3,025,000**, Richad D. Kimball Co., 6 Beacon St., Boston, mech. engr. Cleverdon, Varney & Pike, 120 Tremont St., struct. engrs. CD 4/24.

Mass., Westport—SCHOOL—Town, Main Rd., Central Village, plans by Israel T. Almy, 56 N. Main St., Fall River, elementary school. **$450,000-$500,000**.

▲† **N. J., Trenton**—TEST CHAMBER—Dpt. Navy, Phila. Naval Base, Phila., Pa., plans by Kelly, Gruzen & McCanathy, Hoffman Assocs., 744 Broad St., Newark, altitude test chamber at Naval Air Turbine Test Station, **$10,000,000**. CD 9/20/51.

▲† **N. Y. Brookhaven**—ACCELERATOR MACHINE—Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. 25, D. C., 25 KBEV capacity proton synchronton atom accelerator machine at Brookhaven National Laboratory, **$20,000,000**.

▲ **Pa., Norristown**—DORMITORY—General State Auth., Capitol Bldg., Harrisburg, plans by George M. Ewing, Western Saving Fund Bldg., Phila., dormitory at State Hospital. **$1,000,000**. CD 2/10/47.

▲ **Tenn., Sevierville**—PLANT—City, City Hall, voted **$2,000,000** bonds Jan. 7, plant for Cherokee Textile Co., Inc., Knoxville, CD 12/17.

Tex.. Austin—TRAINING and SHOP—Dpt. Public Safety, Col. Homer Garrison, dir. 5805 N. Lamar St., plans by Jessen, Jessen, Millhouse & Greeven, 2816 Guadalupe St. training and shop bldg. **$600,000**. CD 12/30.

▲ **Tex., Fort Worth**—HIGH SCHOOL—Fort Worth Independent School Dist., 409 E. Weatherford St., plans by A. George King & Assocs., 809 Penn St., Southside High School to replace present Paschal High School. **$1,400,000**. CD 6/3/52.

Tex., Vidor—HIGH SCHOOL—Vidor Independent School Dist., Vidor, plans by Wallace B. Livesay & Sons, Box 2228, Beaumont, high school. **$750,000**.

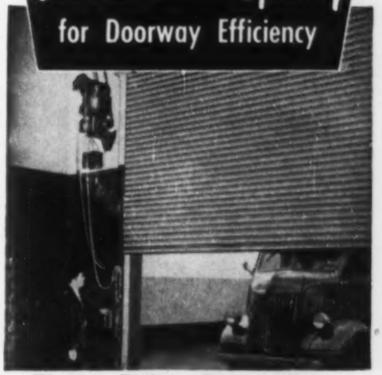
Utah, Altamont—HIGH SCHOOL, etc.—Duchesne Co. Bd. Educ., Duchesne, plans by Cannon & Mullen, 506 Zion Saving Bank Bldg., Salt Lake City, high school and elementary school addns. **$657,898**.

▲† **Utah, Tooele**—SECURITY BLDG., etc.—U. S. Eng., 180 Montgomery St., San Francisco, Calif., security bldg., fuel storage facilities, control tower, rehabilitation of heavy equip. shop; roadway, **$2,000,000**, Dugway Proving Grounds.

Va., Boydton—HIGH SCHOOL—Mecklenburg Co. School Bd., Boydton, plans by Samuel N. Mayo, 1900 W. Broad St., Richmond, 1 story masonry Consolidated High School, Skipwith. **$625,000**.

▲† **Va., Radford**—BAGGING FACILITIES, etc.—U. S. Eng., foot of Front St., Norfolk, funds withdrawn and contract cancelled with archts. and engrs., addnl. bagging facilities at New River Arsenal, **$17,000,000**. CD 1/5/54; rehabilitation existing facilities and constr. new ones required for more powder lines, Radford Arsenal, **$6,418,000**. CD 12/3.

Clear the ENTIRE Opening
for Doorway Efficiency



Kinnear Rolling Doors coil up and out of the way, clearing the entire opening, from jamb to jamb and floor to lintel! The rugged interlocking steel-slat curtain glides into instantaneous action with either manual or push-button control. Write now for all details.

The KINNEAR Manufacturing Company
1820-40 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in Principal Cities

Saving Ways in Doorways
KINNEAR
ROLLING DOORS

TEST BORINGS
for
• COAL
• MINERALS
• DAMS & BRIDGES
• BUILDINGS
"We look into the Earth"
PENNSYLVANIA Drilling CO.
DRILLING CONTRACTORS AND MFRS.
PITTSBURGH 20, PA.

DUDGEON HYDRAULIC JACKS
SALES RENTALS
•
CAPACITY TO 600 TONS

FOR:
PILE TESTING
•
UNDER-PINNING
•
BRIDGES
•
PIPE PUSHING
•
SOIL TESTING

Write to Dept. Ⓡ

RICHARD DUDGEON INC.
789 BERGEN ST. • ST 9-4040 • BROOKLYN, N. Y.

Power you can punish!

That's LE ROI heavy-duty power

Power that pays off in
Dependable service!
Operating economy!
Easy maintenance!

THE extra reliability of Le Roi engines is a proved fact — proven by dependable and economical performance on one tough job after another.

A Le Roi is no automotive lightweight — it's a power-packed valve-in-head engine designed from scratch for *heavy-duty* service. It has the weight and stamina it takes to stand the punishment handed out to field equipment. It has advanced design, precision machining, and quick-maintenance features.

These are reasons why Le Roi is a leader in the heavy-duty field. They're reasons why you find so many Le Roi engines powering oilfield equipment, construction equipment, industrial machinery, and agricultural equipment.

Let Le Roi's performance record guide your judgment, when you buy equipment or select engines for original-equipment or replacement power. Le Roi has a full range of sizes from 15 to 635-hp — for gasoline, natural gas, butane. And remember — Le Roi power is power that pays off.

A typical Le Roi engine application in the construction field—powering a Haiss loader.

Write for latest bulletins.

LE ROI
LE ROI COMPANY
A Subsidiary of Westinghouse Air Brake Co.
MILWAUKEE 14, WISCONSIN
E-88

Plants: Milwaukee • Cleveland — Greenwich — Dunkirk, Ohio • Coldwater, Michigan

▲ **Wash., Ellensburg**—SCHOOL—School District 401, Ellensburg, Senior High School. **$1,300,000.**

▲ **Wash., Seattle**—SCHOOL—School District No. 1, 815 4 Ave. N., $10,000,000 bond election Mar. 9, first phase of $25,000,000 program, high school in southwest Seattle, **$2,750,000**; Junior High School, **$2,500,000**; 2 elementary schools **$675,000** each; warehouse **$400,000**; 3 high schools Southwest Seattle, Northeast Shoreline and South Rainier Districts, **$2,750,000** each, 4 Junior High Schools, **$2,500,000** each; 10 elementary schools in Victory Heights, Sand Point, South Hughes, West Broadview, Dearborn, East Wedgwood, South Emerson West Dunlap, Cooper-Highland Park and East Lake City areas, **$675,000** each, proposed for construction in near future but not under bond; gymnasium addns., for city's 8 high schools, **$350,000** each.

Wis., Monona—SCHOOL—Town of Blooming Grove and Village of Monona, high school, **$900,000.**

B. C., **Kitimat**—SCHOOL—School District No. 80, Kitimat, plans by Sharp & Thompson, 1553 Robson St., Vancouver, school construction. **$730,000.**

B. C., **Nanaimo**—HOSPITAL—Nanaimo Hospital Bd., Nanaimo, plans bv Gardiner, Thornton & Partners, 1664 W. Broadway, Vancouver, B. C., Nanaimo Hospital addn. **$600,000.**

Ont., **Dryden**—HOSPITAL, etc.—Dryden & District General Hospital, D. E. Scott, chn., Dryden, 50-bed hospital and nurses' residence. **$580,000.**

COMMERCIAL BUILDINGS

Ala., Montgomery—CHURCH—First Baptist Church, 301 S. Perry St., plans by Raymond Sizemore, 28 S. Hull St., church, **$500,000.**

▲ **Calif., Los Angeles**—OFFICE—Richfield Oil Corp., 555 S. Flower St., plans by Albert C. Martin & Assoc., 333 S. Beaudry Ave., Zone 17, 5 story, rein.-con. office, **$3,000,000.**

▲ **Calif., San Mateo**—MOTEL—Axel V. Johnson, San Mateo Investment Co., San Mateo, motel with swimming pool, other facilities on El Camino Real between 39 and 41 Avenues, **$2,000,000.**

Del., Bellefonte—CHURCH, etc.—St. Helena's Roman Catholic Church, 610 Phila. Pike, Bellefonte, plans by Gleeson & Mulrooney, Fox Bldg., Phila., Pa., church and school. **$500,000.**

Del., New Castle—CHURCH, etc.—Wilmington Roman Catholic Diocese, 414 W. 28 St., Wilmington, church, school, rectory and convent. Over **$500,000.**

▲ **Ill., Berwyn**—SHOPPING CENTER—National Plazas Inc., c/o Phillip Levit, 120 S. LaSalle St., Chicago, plans by Anthony J. Zelenka, 2331 Lombard Ave., Cicero, shopping center, on 29-acres, 22 and Harlem Sts. **$5,000,000.**

▲ **Ill., Chicago**—SCHOOL—Catherine of Sienna Parish, c/o Belli & Belli, archts., 8 S. Dearborn St., Zone 3, high school, 5600 W. Washington Blvd. **$1,500,000.**

▲ **Ill., West Chicago**—SEMINARY—Franciscan Fathers, West Chicago, plans by Thos. J. Higgins, 228 N. LaSalle St., Chicago, Zone 1, theological seminary, North Ave. and Route 59. **$1,000,000.**

▲ **Ia., Davenport**—SHOPPING CENTER—Eagle Food Centers, Inc., Hy. 6 and Division St., plans by Norman E. Keller, 925 24 St., Moline, Ill., shopping center, **$1,000,000.** CD 7/15/52.

Mass., Holyoke—SHOPPING CENTER—Frank H. Cataldo, Inc., 355 High St., plans by Munson & Mallis, 60 Beyers St., Springfield, shopping center west of Memorial Dr. near Sames St. Rotary. **$500,000.**

▲ **Mass., Saugus**—SHOPPING CENTER—Milton G. Green & Allen J. Green, 1368 Beacon St., Brookline, plans by William Riseman Assoc., Inc., 162 Newbury St., Boston, shopping center, incl. 4 bldgs., parking space on 164 acres, west side Newburyport Turnpike, Main and Essex Sts. **$5,000,000.** CD 4/15.

▲ **Mo., Richmond Heights (St. Louis 17 P.O.)**—SHOPPING CENTER—Stix, Baer & Fuller Co., Arthur B. Baer, pres., 601 Washington Ave., St. Louis, Zone 1, shopping center, incl. 4 story, bsmnt. bldg. to house department store, 2 other bldgs., to house chain stores and facilities for parking on 25 acre tract, Brentwood and Clayton Rds. **$8,383,700.** CD 5/27/52, under Mo., Clayton.

▲ **N. J., Morristown**—HOSPITAL—All Soul's Hospital, 95 Mt. Kemble Rd., plans by J. Gerald Phelan, 211 State St., Bridgeport, Conn., hospital addn., Mt. Kemble Rd. **$2,000,000.** CD 12/17.

▲ **N. Y., Brooklyn**—APARTMENT—Fulton Terrace, Inc., 16 Court St., Zone 2, plans by Seelig & Finkelstein, 153 Pierrepont St., Zone 2, 6 story apartment, 7251-69 Shore Rd. **$1,000,000.**

▲ **Pa., Phila.**—HOSPITAL WING—Episcopal Hospital, Front St. and Lehigh Ave., plans by Vincent G. Kling, 917 Corinthian Ave., hospital wing. **$2,000,000.** CD 1/22/46.

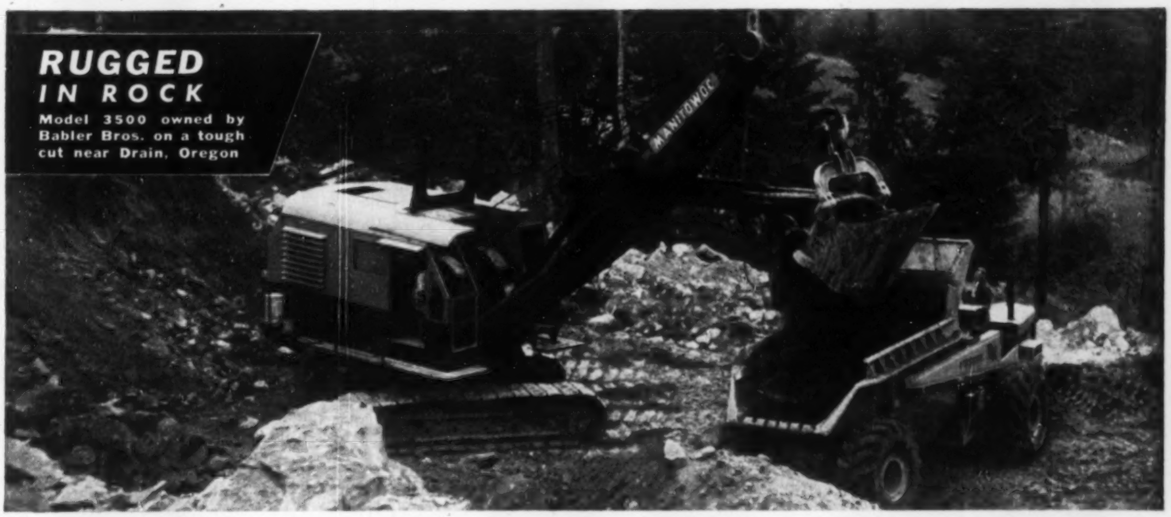
Pa., **Villanova**—STUDENT UNION—Villanova University, Villanova, plans by Henry D. Dagit & Sons, 1329 Race St., Phila., student union bldg. **$500,000.** CD 12/16.

▲ **Tex., Houston**—HOTEL—Western Hills Hotel, Inc., c/o Hank Green, pres., 6451 Camp Bowie St., Fort Worth, plans bv Golemon & Rolfe, 5102 Travis St., 200-room hotel. **$2,500,000.** CD 8/17.

▲ **Va., Alexandria**—SHOPPING CENTER—Taylor Street Corp., c/o Joseph H. Saunders, Jr., archt., 121 S. Columbus St., 1 and 2 story, bsmnt., masonry shopping center. **$1,000,000.**

Va., **Norfolk**—TEMPLE—Masonic Temple, 301 E. Freemason St., plans by Rudolph, Cooke & Van Leeuwen, Inc., 355 Monticello Arcade, Norfolk, 2 story, masonry masonic temple. **$750,000.**

(Continued on page 94)



RUGGED
IN ROCK
Model 3500 owned by Babler Bros. on a tough cut near Drain, Oregon

MANITOWOC best for ANY job!

You can bid closer, without worrying about what soils you may encounter, because a Manitowoc takes 'em all in stride — dirt, rock, shale, gumbo, you get real cost cutting, big yardage performance.

Manitowoc's exceptionally rugged construction, fast operating cycles and simplicity of design pay off in more yardage, at lower net cost per yard. Before you bid your next job, remember it's better to bid with a Manitowoc than against it. Write for complete details.

Manitowoc Engineering Corp., Manitowoc, Wis.

MANITOWOC
SHOVELS 1-5 YD.
Speedcrane
CRANES 18-100 TON

SPEEDY
IN SOIL
Model 4500, 6 yd. bucket on 140' boom, with Torque Converter, turns out 300 yds. per hour for Cook Const. Co., working near Chester, Ill.

THE WISDOM OF CENTURIES . . .

THE PRECISION OF **TODAY!**

Kern
AARAU

Knowledge that built the Great Wall, stone by patient stone . . . a science old when Western civilization was new . . . all this is but a tiny part of the priceless Kern heritage. Engineered for matchless accuracy . . . split second precision . . . your Kern surveying instrument is everyday proof of a tradition beyond compare.

THE GK1 LEVEL

A brilliant step forward, the GK1 level adds three superb new features to the jointed head tripod: A bayonet joint connecting tripod and instrument; a tilting screw in conjunction with coincidence spirit level; and a friction clutch instead of the conventional side clamp. Operation is simpler . . . faster . . . far more efficient. And, as is true of all Kern instruments . . . the GK1 is unconditionally guaranteed. Send for complete specifications.

Complete Service Department
Factory Trained Personnel

Kern Surveying Instrument Division
PAUL REINHART CO., INC.
68 Beaver Street, New York City

(Continued from page 92)

Wash., **Tacoma**—GROCERY STORE—Safeway Stores, Inc., 1260 4 Ave. S., Seattle, grocery store, 26 and Stevens Sts. **$500,000.**

Wis., **Eau Claire**—SHOPPING CENTER—H. Shanedling Sons Corp., 2025 Nicollet Ave., Minneapolis, Minn., plans by G. Becker, 1201 Turners Cross Rd. S., Minneapolis, Minn., shopping center, incl. 9 units, southeast of here, near junction of Hys. 12 and 93. **$500,000.**

Ont., **London**—APARTMENT—E. K. McLean, 301 St. George St., 3 story, bsmnt., 108x132 ft., brick, apartment, old Huron College Grounds. **$500,000.**

▲ Ont., **Toronto**—HEADQUARTERS—Canadian National Institute for the Blind, 186 Beverly St., plans by Stanford & Wilson, 86 Charles St. E., Toronto, headquarters bldg., 10½ acre site northeast Toronto suburban area, **$4,000,000.** Wallace, Carruthers & Assocs., Ltd., 35 Isabella St., consult. engrs. CD 2/27.

Que., **Montreal**—OFFICE and LOFT—Four Hundred Dorchester, Inc., c/o Mayerovitch & Bernstein, archt., 1500 St. Catherine St. W., office and loft bldg., Dorchester and St. Alexander Sts. **$500,000.**

Que., **Montreal**—OFFICE—Plaza Towers, Inc., 1705 Willia St., plans by Ross, Patterson, Townsend & Fish, 4115 Sherbrooke St. W., 7 story, 50x100 ft. rein.-con., stone, brick office, Lagauchetiere and University Sts. **$500,000.**

INDUSTRIAL BUILDINGS

▲ Ga., **Augusta**—PLANT—Pet Dairy Products Co., Johnson City, Tenn., dairy plant, **$1,000,000.**

Ill., **Chicago**—WAREHOUSE—Westinghouse Electric Co., 201 Liberty Ave., Pittsburgh, Pa., plans by Bruce A. Gordon, 1 N. La Salle St., Zone 2, 100,000 sq. ft., warehouse, Narragansett St., at Cortland St. **$800,000.**

▲ Kan., **Leavenworth** — GRAIN ELEVATOR—Moore-Lowry-Merrill Elevator Co., Board of Trade, Kansas City, Mo., grain elevator. **$1,500,000.**

Kan., **Shawnee**—TRAINING—General Motors Corp., General Motors Bldg., Detroit, Mich., training bldg. **$500,000.**

Minn., **St. Paul**—GARAGE—Victory Auto Park, Inc., J. Geller, chn., c/o L. Johnson, archt., 217 Hamm Bldg., multi-stories ramp garage with parking space, 7,500 sq. ft. shop, space on ground floor, Fourth and Wabasha Sts. **$750,000.**

▲ N. D., **Tioga**—REFINERY PLANT—M. B. Rudman Co., Mercantile Bank Bldg. and Hunt Oil Co., Mercantile Bank Bldg., Dallas, Tex., gasoline refinery plant. **$6,000,000.**

▲ Tex., **Houston**—STORAGE PLANT, etc.—Swift & Co., 1102 Commerce St., 19,000 sq. ft. prefab. steel, galvanized iron cotton seed storage plant, 401 W. 6th St., **$900,000;** masonry. metal type plant food unit, 6th Ave. and Waverly St., **$100,000;** metal, masonry wholesale storage unit, 7th Ave. and Waverly St., **$90,000.**

Tex., **San Marcos**—MILL—Cone Mills Corp., Greensboro, N. C., textile mill, 100-acre site, near here. **$500,000.**

▲ Ont., **Toronto**—PLANT—General Mills, Inc., 400 Second Ave. S., Minneapolis, Minn., U.S.A., package food plant, Islington Ave. W. in Toronto suburban Etobicoke area, **$2,500,000.**

UNCLASSIFIED

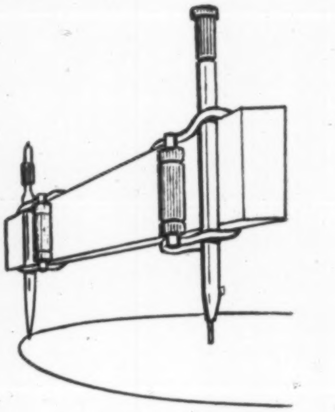
Georgia—RURAL DISTRIBUTION LINES—Blue Ridge Electric Assn., Young Harris, 114 mi. rural distr. lines and sys. imprvs., Towns Co. **$725,000.**

Ind., **Versailles**—PARK—Indiana Conservation Dpt., Kenneth Cougill, state parks dir., State Library Bldg., Indianapolis, park, 200-acre lake and dam on Laughery Creek, in Versailles State Park, northeast of here. **$600,000.**

Missouri — RURAL DISTRIBUTION LINES — Nodaway-Worth Electric Co-operative, Maryville, 76 mi. rural distr. lines, sys. imprvs., Nodaway Co. **$500,000.**

▲† R. I., **Newport**—PIER—P. Wks. Office, 495 Summer St., Boston, Mass., pier, 1,300 ft. long, concrete, steel piles, double railroad tracks, steam, electric etc., Fleet Berth Facilities, Coddington Cove. **$4,000,000.**

UNLIMITED CIRCLES



Kern
AARAU

MOD. 1102

More than a match for any problem concerning the circle, Kern beam compasses provide an easy solution to the problem of the larger circle. For the Kern beam compass embodies the same traditional know-how and craftsmanship which has brought the Kern name the highest tributes in the drafting instrument field. Manufactured for really rugged use, these compasses are tough and yet are capable of adjustments within 0.118 ins. of any chosen measurement. By adding additional sections, the rod can be extended to any length desired.

SEE THE COMPLETE KERN LINE

Write today for our new, fully illustrated catalogue of sets and individual pieces. Model No. 1102 pictured, price $7.20.

Available at your dealer or write:

Kern Drawing Instrument Division
BORDEN & RILEY PAPER CO.
60 E. 11 Street, New York City

Kern
AARAU

PRECISION INSTRUMENTS SINCE 1819

ON THE NEWS FRONT WITH STRUCTURAL STEEL

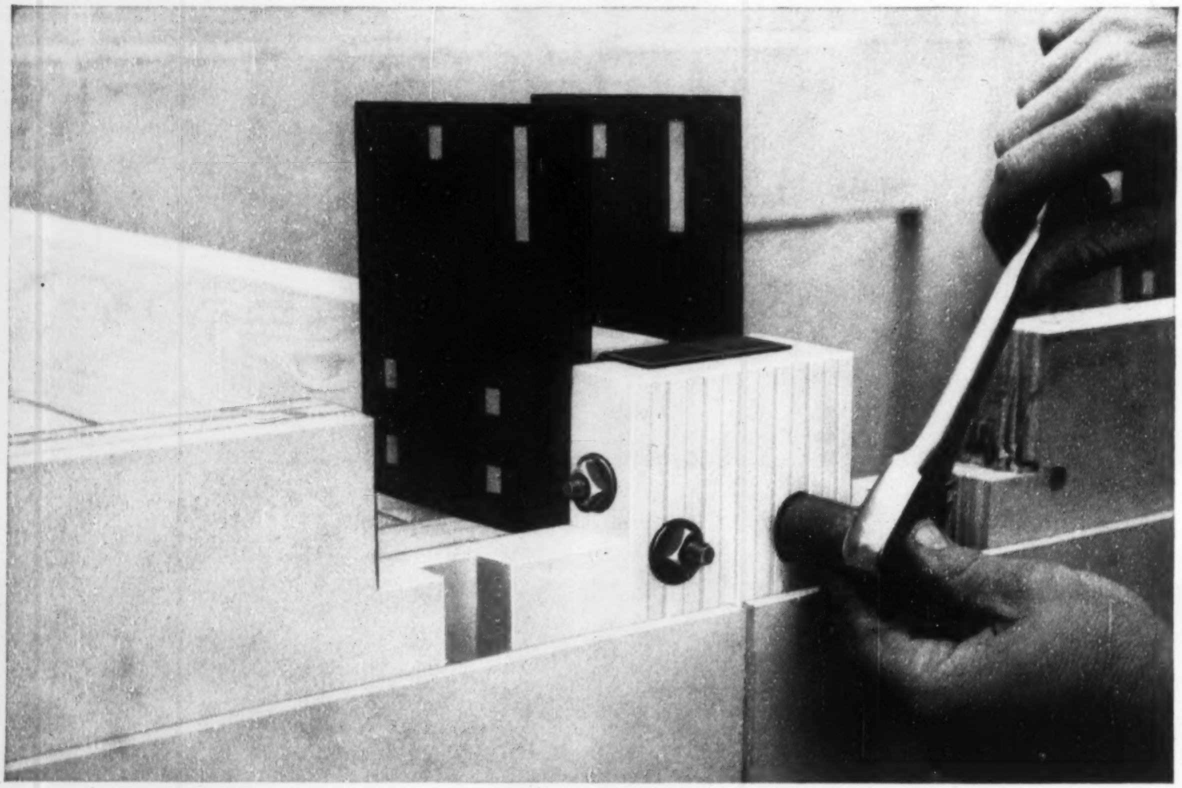
HOSPITAL. This attractive brick structure is the U. S. Veterans' Administration Hospital, completed recently at East Orange, N. J. The 15-story structure, built for the U. S. Engineers, New York District, provides for 1000 beds. Its laundry, garage, and heating plant are each housed in a separate building. The hospital's steel framework is made up of Bethlehem Structural Shapes. Architects: Ziegler, Childs and Paulsen, Jersey City; Consulting Engineer: Lars I. Moe, Jersey City; General Contractor: H. R. H. Construction Corp., New York; Steel Fabricator and Erector: Harris Structural Steel Co., New York.

APARTMENT BUILDING. This structure at Charleston, S. C., the Darlington Apartments, is twelve stories high, completely air-conditioned, and has facilities for 156 families. Its apartment units range in size from compact efficiency apartments to spacious 3-bedroom suites. The brick facing, in pleasing reds and browns, covers a framework of Bethlehem Structural Shapes. Owner: The Darlington, Inc., Charleston, S. C.; Builder: Long Construction Co., division of Long Corp., Charleston; Architects: Lyles-Bissett-Carlisle & Wolff, Columbia, S. C.; Steel Fabricator and Erector: The Steel Products Co., Inc., Savannah, Ga.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



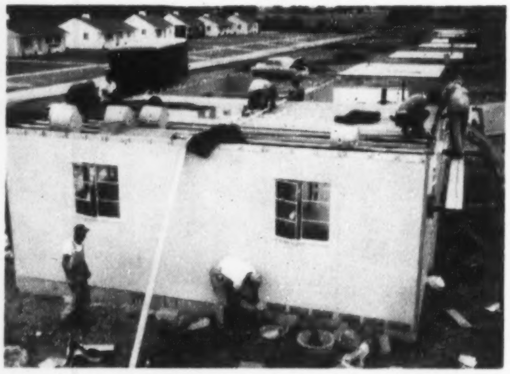
RAISING THE ROOF of a U.S. Steel home goes faster with help of RB&W bolts. Here workman is tightening bolt holding steel plate to exterior wall panel. Plate is then used as joint for bolting ceiling panels.

That's a house he's bolting together!

U.S. Steel Homes found that bolting together the panels of their fast-selling homes saves time and trouble. Nails are used only to hold panels temporarily in position for bolting and add no structural strength.

It's no accident, of course, that RB&W bolts and nuts were specified here. U.S. Steel Homes isn't the first to discover that the absolute uniformity and dependable holding power of RB&W products make them the best fasteners for any job. Workmen like the way RB&W nuts run on RB&W bolts fast and easy. And there's no question about the extra strength RB&W bolt-and-nut construction gives these homes.

Whenever you want to put something together *fast*, and make it stay fastened *for good*, give one of our men a ring. As a top-ranking maker of all kinds of fasteners, we're always able to recommend and supply the right ones for all your needs. You can count on fast delivery, too. RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY, Port Chester, N.Y.



HOUSE GOING UP. U.S. Steel home nears completion as workmen on scaffold (right) bolt on exterior panels. These sturdy homes offer quality construction at budget price.

3.8

RB&W

109 YEARS MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG

Plants at: PORT CHESTER, N.Y.; CORAOPOLIS, PA.; ROCK FALLS, ILL.; LOS ANGELES, CALIF. *Additional sales offices at:* ARDMORE (PHILA.), PA.; PITTSBURGH; DETROIT; CHICAGO; DALLAS; SAN FRANCISCO. *Sales agents at:* PORTLAND, SEATTLE. *Distributors from coast to coast.*

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 2 Massachusetts

BUILDINGS

LOW BIDS AND CONTRACTS

Fabrizio & Martin, MacLaren Rd., Darien, Conn., LB, **$619,000**, Roxbury Elementary SCHOOL, Roxbury and West Hill Rds., STAMFORD, CONN. City, City Hall, Stamford, Conn. Bids Jan. 15. CD 1/6.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 19 Pennsylvania
STREETS AND ROADS
February 2 Maryland February 9 New Jersey
February 19 Pennsylvania

▲† **N. Y., Syracuse**—BARRACKS, etc.—B.A. 2/25—U. S. Eng., 80 Lafayette St., New York, Zone 13, barracks, A/C fuel storage, parking apron and mess hall, Hancock Field, Air National Guard Facilities, FY 1954, Serial No. Eng-30-075-54-139. $1,400,000. Plans deposit $10. CD 1/20, under LB.

BIDS ASKED—BUILDINGS

N. Y., Mahopac—SCHOOL—B.A. 2/9—Bd. Educ., Central School Dist. 1, Town of Carmel, and Putnam Valley, Mahopac, Mahopac Central School addn. $900,000.

▲ **Pa., Fallsington**—HIGH SCHOOL—B.A. 2/25—Pennsbury Joint School Dist., Fallsington, William Penn Junior High School Bldg., Fairless Hills, $2,400,000. A. E. Micklewright, 72 Ewing St., Trenton, N. J., archt. William S. Erwin, Fairless Hills, engr. CD 12/15.

Pa., Lansdale—HOSPITAL—B.A. About 2/28—North Penn Hospital, Lansdale, hospital addns., alterations. $800,000. Lawrie & Green, 321 N. Front St., Harrisburg, archts. CD 12/22.

▲† **N. Y., West Point**—LAUNDRY, etc.—B.A. 4/6—U. S. Eng., 80 Lafayette St., New York, Zone 13 laundry and dry cleaning bldg., FY 1952. $1,000,000-$3,000,000. John & Drew Eberson, 2 W. 47 St., New York, Zone 19, archts. CD 11/15/51.

SOON LETS CONTRACT—BUILDINGS

N. J., Longport—APARTMENT DEVELOPMENT—Aaron Colish, archt., 117 S. 17 St., Phila., Pa., soon lets contract garden apartment development, 16 St., for Longport Arms, Inc., c/o architect. $750,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Gull Contg. Co.**, 33-15 Lawrence St., Flushing, N. Y., LB **$5,817,490**, New York Land Sect. No. 2 for Third Tube of Lincoln Tunnel, Contr. LT 160.008, NEW YORK. Port of New York Auth., 111 8th Ave., New York 11, N. Y. Bids Jan. 19. CD 1/13.

Corigliano Bros., Starling Bldg., Ossining, N. Y. CA **$891,028**, sewage disposal plant, NORTH TONAWANDA, N. Y. Dpt. P. Wks., City Hall, North Tonawanda, N. Y. Bids Dec. 7. CD 12/3.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **William A. Berbusse Jr., Inc.** 101 Park Ave., New York 17 N. Y., CA **$3,790,000**. 183-bed HOSPITAL, 66-acre tract, Albany Post Rd., TARRYTOWN, N. Y. Phelps Memorial Hospital, c/o Walter L. Johnson, 304 Spring St., Ossining, N. Y. CD 12/22/52, under N. Y. Mount Pleasant Twp.

▲ **Wark & Co.**, 1920 Sansom St., Phila., Pa., CA **$7,000,000**, department STORE and parking area, ELKINS PARK PA. Gimbel Bros., 9th and Market Sts., Phila., Pa. Welton Beckett & Assocs., 5657 Wilshire Blvd., Los Angeles Calif., archts. Howell Lewis Shay, Packard Bldg., Phila., Pa., assoc. archt. CD 7/2, under Pa., Cheltenham.

▲ **John A. Robbins Co., Inc.**, 10 S. 18 St., Phila., Pa. CA **$1,900,000**. HOUSING, MAINTENANCE BLDG. and paving, PHILA., PA. Larchwood Gardens, Inc., 10 S. 18 St., Phila., Pa. (Sponsor, Penna Dpt. Commerce & State Planning Blvd., Harrisburg Pa.) S. Kendrick Lichty, 830 Lancaster Ave., Bryn Mawr, Pa., archt.

George W. Shive, Yardley, Pa., CA **$810,000**. RESIDENTIAL DEVELOPMENT, Upper River Rd., YARDLEY, PA. Maplevale Homes, c/o Alexander S. Lipschutz, Land Title Bldg., Phila, Pa.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
February 5 Kentucky February 17 Louisiana

BUILDINGS

LOW BIDS AND CONTRACTS

Virginia Eng. Co., Inc., 29th St. at James River, Newport News, Va., LB **$814,000** Base Bid, **$2,400,000** Alt. incl. equip. ADMINISTRATION and CLASSROOM BLDG., Norfolk Div., NORFOLK, VA. Virginia State College, Petersburg, Va. Bids Jan. 14. CD 12/17.

MIDDLE WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **ILLINOIS**—State Div. Hys., Springfield,
Arcole Midwest Corp., 3225 Main St., Evanston, Ill., LB, **$760,906**, c. conc. base course 8.01 mi. and c. conc. base course wid'n. 3.51 mi., c. conc. paving and 1 bridge U.S. 150, Woodford and McLean Counties; LB **$405,714**, c. conc. base course wid'n. 15.08 mi. U.S. 45, Coles and Douglas Counties;
Barber Paving Co., 7 S. Dearborn St., Chicago, 3, Ill., LB, **$154,774**, bit. resurf. 5.21 mi. U.S. 24, Iroquois Co.;
Berenz & Son Asphalt Co., 500 E. Bell St., Bloomington, Ill., LB, **$223,635**, bit. resurf. 11.51 mi. U.S. 150, Woodford and McLean Counties;
S. J. Groves & Sons Co., 1104 W. Reynolds St., Springfield, Ill., LB, **$1,472,500**, c. conc. paving 10.99 mi. US. 66, Montgomery and Macoupin Counties;
Hedges Constr. Co., 108 N. La Salle St., Chicago, Ill., LB, **$299,933**, c. conc. base course wid'n. 5.03 mi. c. conc. paving 1.16 mi. US. 24, Iroquois Co.;
Howell Asphalt Co., P.O. Box 420, Mattoon, Ill., LB, **$398,732**, bit. resurf. 15.73 mi. U.S. 45, Coles and Douglas Counties;
McDougal & Hartman Co., 1500 N. Adams St., Peoria, Ill., LB, **$191,647**, c. conc. paving 0.79 mi. 2 city streets leading to Rock River Bridge, Sterling and Rock Falls, Whiteside Co.;
E. A. Meyer Constr. Co., 1539 Marrow Ave., North Chicago, Ill., LB, **$1,325,351**, c. conc. paving 4.75 mi. U.S. 14, McHenry and Lake Counties;
Triangle Constr. Co., 480 N. Evergreen Ave., Kankakee, Ill., LB, **$306,275**, c. conc. base course wid'n. 2.11 mi. Ill. 15 and 130, Albion, Edwards Co.;
Trompeter Constr. Co., 2428 4 St., Peru, Ill., LB, **$90,551** c. conc. paving and bit. resurf. 0.69 mi. U.S. 51 La Salle Co. Bids Jan. 19. CD 1/12.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **District Constr. Co.**, c/o Charles Colman, archt., 1836 Euclid Ave., Cleveland 15, O. Owner Builds. **$5,000,000**. 500-unit brick garden type APARTMENT DEVELOPMENT, Granger Rd., GARFIELD HEIGHTS, O. Robert Krause, 1926 E. 79 St., Cleveland 6, O., engr.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 4 Kansas

BIDS ASKED—BUILDINGS

▲ **Minn., St. Paul**—OFFICE—B.A. About 2/23—Minnesota Mutual Life Insurance Co., 156 E. 6 St., 8 story office, Victory Square, Cedar St. $2,500,000, Ellerbe & Co., E. 505 First National Bank Bldg., archts. CD 11/27/51.

SOON LETS CONTRACT—BUILDINGS

▲ **Ia., Des Moines**—GRAIN ELEVATOR—Farmers Grain Dealers Assn., 1101 Walnut St., Des Moines, soon lets contract grain elevator, $3,500,000. CD 9/28.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **C. H. Leavitt & Co.**, 1900 Wyoming St., El Paso, Tex., CA **$4,000,000**. SHOPPING CENTER, 42nd and Center Sts., OMAHA, NEB. The Center, John A. Wiebe, Developer, 1124 W. O. W. Bldg., Omaha, Neb. CD 10/1, under CA.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
February 10, 11 California

BIDS ASKED—BUILDINGS

▲ **Wash., Seattle**—SCHOOL—B.A. 2/9—Catholic Diocese of Seattle, 906 Terry Ave., Zone 4, 3 story, rein.-con. high school in north end. $1,300,000. J. W. Maloney, Central Bldg., Seattle, Zone 4, archt. CD 3/14/45.

▲ **Ore., Eugene**—DORMITORY—B.A. 2/16—State Bd. Higher Educ., University of Oregon. Eugene, 300-man five unit, concrete dormitory addn., Straub Memorial Hall, University of Oregon. $1,250,000. Plans deposit $25. Church, Newberry & Roehr, Builders Exchange Bldg., Portland, archts. CD 2/4.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

WASHINGTON—State Hy. Comn., Transportation Bldg., Olympia,
N. Fiorito Co., 844 W. 48 St., Seattle, Wash., CA **$877,432** paving and bridge construction 2.19 mi. Hy. 1 for Vancouver Freeway, Clark Co. Bids Jan. 12. CD 1/18, under LB.

▲† **Hitachi, Ltd.**, Tokyo, Japan, LB **$1,073,522**, furnish 14 turbine governors, The Dalles Dam, Wasco Co., Civeng-35-026-54-58, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Jan. 12. CD 11/17.

BUILDINGS

LOW BIDS AND CONTRACTS

Tidewater-Shaver Barge Co., Pasco, Wash., CA, **$800,000**, AMMONIA TERMINAL, PASCO, WASH. Shell Chemical Corp., 100 Bush St., San Francisco, Calif.

Purvis Constr. Co., S 702 Washington St., Spokane, Wash. LB, **$936,270**, 4 story HOSPITAL addn., SPOKANE, WASH. Deaconess Hospital, 733 4 St., Spokane, Wash. Bids Jan. 14. CD 12/10.

H. A. Briggs Co., 5119 N. 31 St., Tacoma, Wash., Day Labor, **$900,000**, 90 HOUSES in Normandy Vista near here, TACOMA, WASH.

▲ **Williams & Burrows, Inc.**, 12 West Orange Ave., South San Francisco, Calif., CA, **$1,404,670**, Village High SCHOOL, Grand and Lorenzo Aves., Unit No. 1, Eden Twp., HAYWARD, CALIF. Hayward Union High School Dist., 2230 Foothill Blvd., Hayward, Calif. Bids Jan. 6, awarded Jan. 15. CD 1/2/18.

▲ **Swinerton & Walberg**, 225 Bush St., San Francisco, Calif., CA, general contract;
Bethlehem Pacific Coast Steel Corp., Webster and Bethlehem Sts., Alameda, Calif., CA, erecting structural steel, DISTRIBUTION BLDG. and SUPPLY CENTER, SAN LEANDRO, CALIF. Western Electric Co., 1400 53 St., Emeryville, Calif., and **Pacific Telephone & Telegraph Co.**, 140 New Montgomery St., San Francisco, Calif. Est. **$4,500,000**. CD 8/11, under Calif., Alameda.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Que., Montreal**—B.A. 2/16—City, C. E. Longpre, clk., City Hall, Contract A-36, filtered water reservoir and related work, municipal reservoir Atwater Ave. Verdun, $1,800,000. Plans deposit $200. H. A. Gibeau, c/o owner, engr. CD 9/13/44.

BIDS ASKED—BUILDINGS

▲ **Ont., Hamilton**—PLANT—Bids Asked—Canadian Liquid Air Co. Ltd., 1111 Beaver Hall Hill, Montreal, Que., 1 story, 50x80 ft., brick, block plant with mezzanine, near Burlington St. $1,000,000. Barott, Marshall, Montgomery & Merrett, Canada Cement Bldg., Montreal, Que., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MANITOBA**—Province of Manitoba, Parliament Bldgs., Winnipeg,
Carter Constr. Co. Ltd., 539 Kylemore Ave., Winnipeg, Man., CA, **$1,210,222**, constr. 9½ mi. Trans-Canada Hy., Whiteshell Forest Reserve. CD 12/1, under LB.

▲ **Canadian Vickers Ltd.**, Maisonneuve Ave., Montreal, Que., CA, **$1,813,149**, 13 bascule type gates and operating machinery for Grass Island Pool control weir, 550 ft. long of rein.-con., one mile above Horseshoe Falls, Niagara Falls, ONTARIO. Hydro-Electric Power Comn. of Ontario, 620 University Ave., Toronto, Ont. R. L. Hearn, c/o owner, genl. mgr. and ch. engr. Awarded Jan. 15. CD 12/15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Provincial Constr. Co. Ltd.**, P.O. Box 1021, Vancouver, B. C. CA, **$2,500,000**, 2 story, concrete 150,000 sq. ft. SHOPPING CENTER, EDMONTON, ALTA. Woodward's Stores Ltd., 101 W. Hastings St., Vancouver, B. C. J. C. Page, 101 W. Hastings St., Vancouver, B. C., archt. Awarded Jan. 15. CD 4/16/52.

▲ **Grisenthwaite Constr. Co. Ltd.**, James St., Cobourg, Ont., **$1,012,999**, low rental type HOUSING DEVELOPMENT, COBOURG, ONT. Cobourg Rental Homes, Inc., Cobourg, Ont.

▲ **Ernest Pompilia**, 109 Melville St., Toronto, Ont., Owner Builds. **$1,200,000**, two 60-suite APARTMENTS, Beverly St., TORONTO, ONT. Venchiarutti & Venchiarutti, 2941 Bathurst St., Toronto, Ont., archts.

▲ **Simpson Hill, Inc.**, 5060 Cote des Neiges Rd., Montreal, Que., Owner Builds, **$1,200,000**, 10 story APARTMENT, Simpson St., MONTREAL, QUE.

FOREIGN

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Hitachi, Ltd.**, Tokyo, Japan, LB Est. **$5,600,000**. four turbines and generators for Snowy Mountains Proj., NEW SOUTH WALES. Snowy Mountains Hydro-Electric Auth., Box 32, P. O. Cooma, 45, N.S.W., Australia.

(Proposal Advertisements see pp. 106 & 107)

AFTER 3 YEARS OF RESEARCH AND ON-THE-JOB TESTING

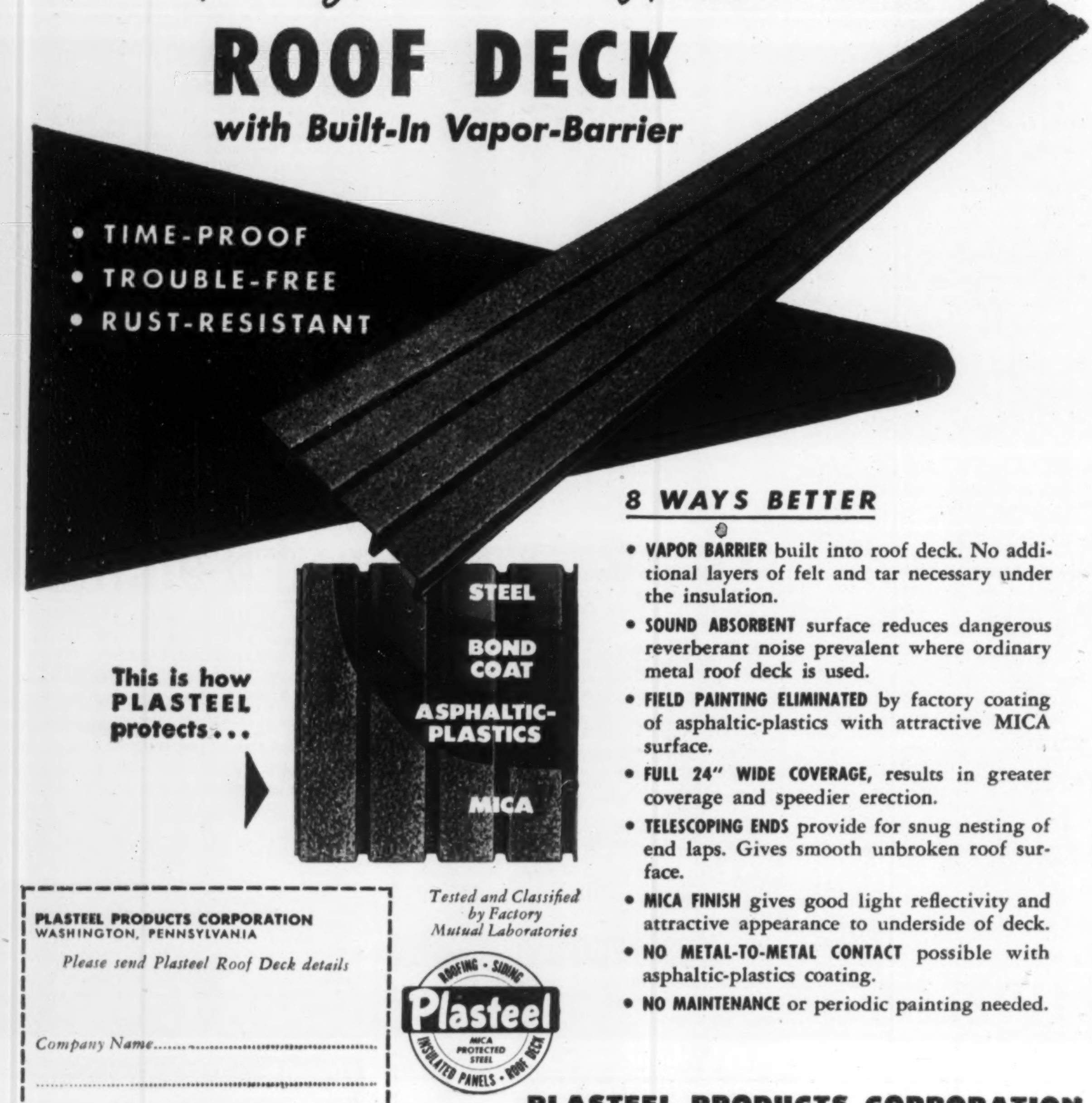
Plasteel

MICA makes the DIFFERENCE

proudly presents the only protected metal

ROOF DECK

with Built-In Vapor-Barrier



- TIME-PROOF
- TROUBLE-FREE
- RUST-RESISTANT

This is how PLASTEEL protects...

8 WAYS BETTER

- **VAPOR BARRIER** built into roof deck. No additional layers of felt and tar necessary under the insulation.
- **SOUND ABSORBENT** surface reduces dangerous reverberant noise prevalent where ordinary metal roof deck is used.
- **FIELD PAINTING ELIMINATED** by factory coating of asphaltic-plastics with attractive MICA surface.
- **FULL 24" WIDE COVERAGE,** results in greater coverage and speedier erection.
- **TELESCOPING ENDS** provide for snug nesting of end laps. Gives smooth unbroken roof surface.
- **MICA FINISH** gives good light reflectivity and attractive appearance to underside of deck.
- **NO METAL-TO-METAL CONTACT** possible with asphaltic-plastics coating.
- **NO MAINTENANCE** or periodic painting needed.

PLASTEEL PRODUCTS CORPORATION
WASHINGTON, PENNSYLVANIA

Please send Plasteel Roof Deck details

Company Name..

....

Attention of..
Title
Address..

City..........................*State*..............

Tested and Classified by Factory Mutual Laboratories

ROOFING · SIDING
Plasteel
MICA PROTECTED STEEL
INSULATED PANELS · ROOF DECK

PLASTEEL PRODUCTS CORPORATION
OFFICES AND FACTORY
WASHINGTON, PENNSYLVANIA
SALES OFFICES IN PRINCIPAL CITIES

BUSINESS AND FINANCE

Equipment loans: good business for banks

Some bankers find it's worth studying construction to make loans in what most of them think is a chancy field

An ENR staff report

Commercial banks that shy away from secured loans to equipment distributors and contractors are missing a good source of potential business. Largely, it's because many bankers don't know much about construction, don't know the various types and brands of equipment involved, and haven't realized that it's worth taking the trouble to learn. That's why they are leaving a wide field of business to the finance companies, a field they could well afford to get deeper into without incurring any more risks than they run on many other branches of their current loan business.

This is the opinion not only of equipment distributors and manufacturers, who naturally would feel that way, but some bankers themselves who know something about the construction business. Here and there around the U. S., there are banks that are not afraid to buy from distributors the paper arising out of sales to contractors, and ultimately secured by the equipment itself. Often, these loans are repaid by installments.

The usual procedure is for the dealer to sign his name to the paper before he can resell it to his bank. But some banks will even go so far as to take some of this paper from dealers they know well, "without recourse." In other words, the dealer drops completely out of the financial picture, without any need to set aside a reserve in case the original borrower—the contractor—should be unable to pay the entire loan. In some cases, though they are rarer, banks will deal directly with contractors.

• Industrial loans—You might call this kind of loan "industrial financing." It's distinct from the customary type of commercial loan business carried on by any bank. Any one of them will lend money without security to a distributor or contractor who has a good credit rating and the best kind of balance sheet, just as a bank will lend to top-grade customers in any other field. This is what bankers usually call an "open line of credit" or an "unsecured loan," because it is not secured by specific assets but by the borrower's general financial condition.

Unsecured loans are usually for 90 days, though they are often renewed if the borrower's season is longer than that. But at some point each year, a high-grade borrower likes to get off the bank's books, if only to show he can do it. Interest rates on such loans are comparatively low, because this is the most desirable type of paper.

Established equipment distributors often qualify for unsecured bank money. They have been in business long enough to establish a credit rating, and—also very important—they do business in a definite territory. In that way, they can borrow working capital and finance floor stock. But when they sell equipment on the installment plan, or rent it out over a long period, the financing gets stickier.

• Distributor's dilemma—Distributors in this industry do business with customers who—many of them—are usually short of cash and need to be carried for long periods. Distributors in some industries can look to their suppliers for financial aid. But in this one the dealer must carry the financing.

Contractors have a harder time. Unless they are big, well-established, and have persuasive balance sheets, they have trouble getting much open credit. Furthermore, many banks will be very cautious about handling contractor paper offered through a dealer, even with the dealer's endorsement.

From the contractor's point of view, it looks simple. He's got a $5-million state road job, for instance, and needs $500,000 worth of equipment. He figures that the equipment will more than pay for itself. He knows the job will be profitable, or else he wouldn't have bid on it. But the average bank, from its point of view, can't have any clear idea whether the job has been figured right, can't tell whether the job will actually pay enough to carry the equipment.

If the contractor is handling several jobs at the same time, and has other equipment on hand, free and clear, that could be used to secure a loan, the average bank can expect that enough of the jobs will turn out profitably to make this one a safe loan.

• Smart banks—This is where the bank has to have enough knowledge of the business to be able to judge whether the contractor will make his profit. Some of them have expert help. For instance, one small New York City bank has several contractors on its board of directors.

And, at National City Bank of Cleveland, vice-president Paul Geisinger does a flourishing business taking contractor paper from distributors. Why is National City outstanding in its area? One reason, certainly, is that Geisinger has had 20 years of experience with a finance company. And he has been handling this kind of business for National City for about eight years. He has gotten to know well the distributors with whom he does business, so that often he will buy their customers' paper "without recourse." He keeps tabs on the contractors who originated the paper, by studying their operating figures.

Taking paper without recourse doesn't put the bank in the position of having to repossess and resell equipment—though that is one of the reasons why many banks which will buy auto installment paper will not touch construction equipment installment paper. Geisinger simply has a working agreement with the dealers that they will handle repossession and resale of any equipment that has to be taken over. Terms are usually from 18 to 24 months, with one-quarter to one-third down payment. Geisinger is close-mouthed about rates. But he allows that National City's are lower, on a simple interest basis, than those charged by finance companies. He thinks more banks gradually will gain confidence in this type of loan.

On the West Coast, the Bank of America, biggest and one of the most venturesome of U. S. commercial banks, does quite a volume of construction-equipment financing, mostly through the dealer. The bank's terms are at least 25% down, and the maximum term is usually no more than 24 months. The bank won't give out rate information, but California gossip is that its rates are generally lower than those charged by finance companies.

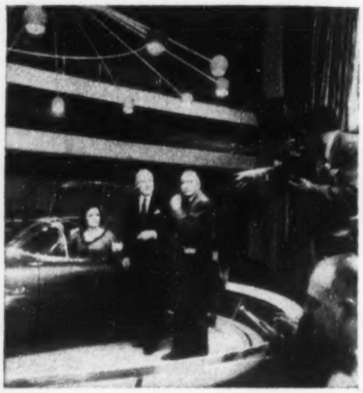
In Chicago, the First National Bank (fifth largest in the U. S.) does a considerable volume of business. This bank usually wants its equipment loans to be paid in 12 months, frequently negotiates installment loans to be paid over two working seasons.

(B & F continued on page 100)

ENR photos by Compton

$1 BILLION FOR THE FUTURE—President Harlow Curtice tells a distinguished gathering in New York about GM's capital spending plans for 1954-55.

PHOTOGRAPHERS posed Curtice for shots as GM unveiled 1954 models.



NEW CARS were all over the place. GM plans new factories to build them.

GM throws $1 billion into the pot

When General Motors Corp. introduced its 1954 line at the Waldorf-Astoria Hotel in New York City last week, it did the job right.

Against a general news background of uneasiness about a 1954 recession, President Harlow H. Curtice announced that GM would spend $1 billion for expansion in the next two years. About 60% of this would be spent in 1954. Then Alfred P. Sloan, GM's board chairman, added that he thought GM probably would spend $1.5 billion for plant and equipment by the end of 1956.

The significance of this announcement for construction men may be estimated by Curtice's comment that GM put out only $2 billion in capital spending during the entire eight years from 1946 through 1953. "Nobody," said Sloan, "knows when this additional capacity will be needed. But we have confidence it is going to be needed some time and we have greater confidence it is going to be needed a lot sooner than many now think."

• 35% to 45%—GM wasn't telling how much of this will go into construction, but people around Detroit are estimating anywhere from 35% to 45%. Obviously, a substantial amount of the construction will be to keep Chevrolet facilities ahead of Ford Motor Co., which is making a deter-

(*Continued on page* 102)

DRY UP FAST WITH
"Foundation WELLPOINTS"

Get PRE-BID estimates by competent, practical construction men who have specialized in all phases of dewatering for up to 26 years.

All estimates based on careful analysis of sub-soil borings, on actual experience in the soils to be dewatered, and on site investigations.

When soil conditions indicate other dewatering methods are more practical and economical, we are qualified to advise other proven methods.

26 YEARS EXPERIENCE

Foundation Equipment
CORPORATION

Long Island City 1, N.Y.
38th Ave. and 10th St.
EXeter 2-1100

Chicago, Illinois
2608 W. 111th St.
Hilltop 5-6282

McKIERNAN-TERRY
Ruggedly-Built
PILE EXTRACTORS

Provide exceptional pulling power, with the sharp energy of blow needed to vibrate and loosen stubbornly set piling. These double-acting extractors come in two standard models—heavy and extra heavy. Standardized line also contains 11 double-acting hammers and 5 single-acting hammers. Write for free bulletin.

Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

McKiernan-Terry Corporation
Manufacturing Engineers
13 Park Row New York 7, N. Y.

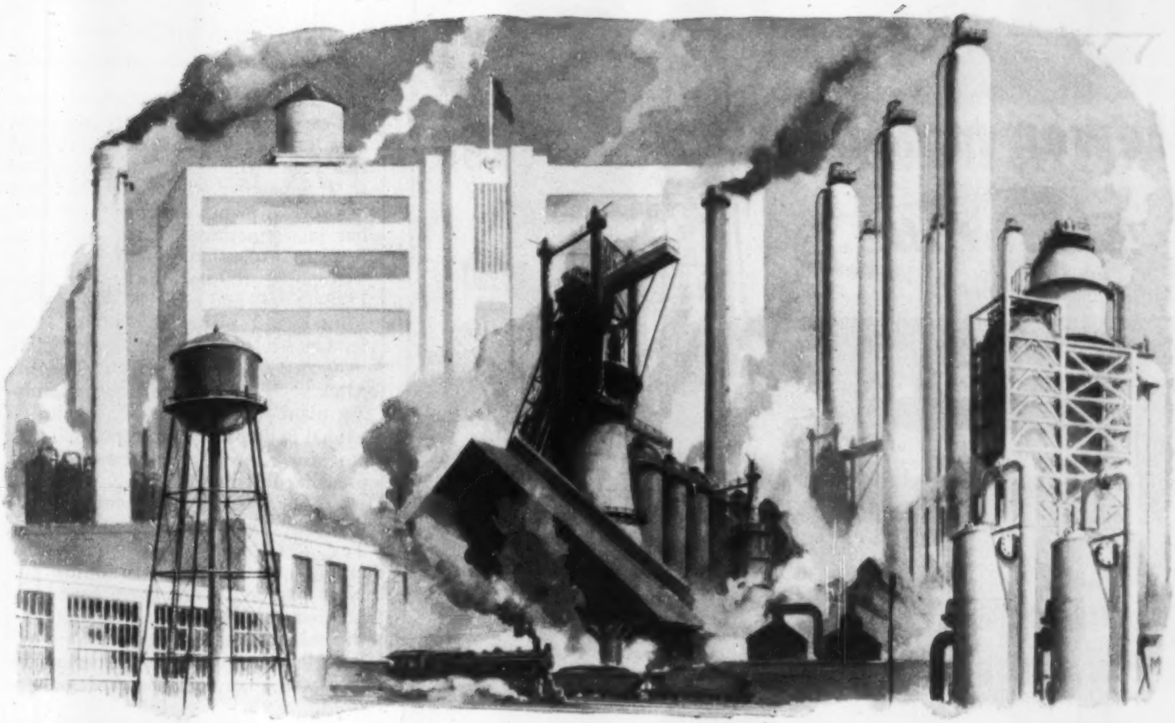
GUNITE
Since 1915
CONCRETE
SAND AND CEMENT
"Placed by Air"

We own and operate 43 complete cement gun outfits. We have completed over 2600 exclusive GUNITE contracts.

Send for specifications and bulletins
No obligation

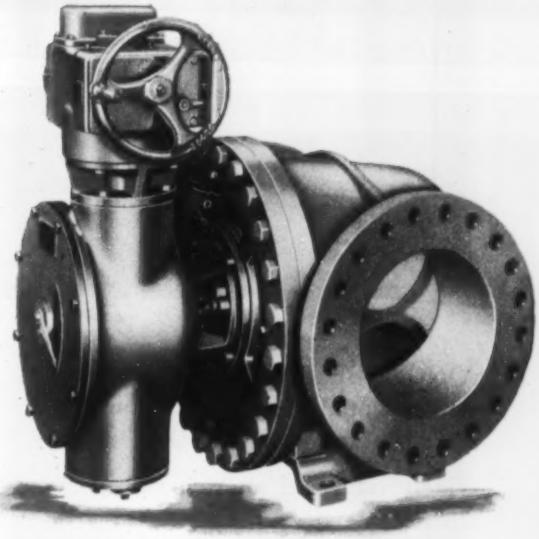
See our catalog in Sweets

GUNITE CONCRETE & CONST. CO.
1301 WOODSWETHER RD., KANSAS CITY 5, MO.
2016 W. WALNUT, CHICAGO 12, ILL.
2036 ADDISON, HOUSTON 25, TEXAS
St. Louis Minneapolis Denver New Orleans



INDUSTRY *and the*
ROTOVALVE

MARCHING toward new goals—in a mechanized manufacturing world — industrialists, engineers, plant managers and management of all kinds are exploring every means of cutting costs and increasing efficiency. This explains the great demand and use of Rotovalves. Their design permits the conical plug to lift, rotate and seat itself, and assures free flow through a full circular opening in both valve body and plug, thereby cutting losses.



Available with either manual, hydraulic or motor control, and in all sizes to fit any industry! *Shipment from stock.* Send for complete data.

S. MORGAN SMITH Co.
YORK, PENNA. U.S.A.

Fewer man-hours on the job!

Sonotube®

FIBRE FORMS

for round columns of concrete

See our display American Concrete Institute Convention, February 22-25—Denver, Colorado, Shirley Savoy Hotel—Booth "D"

(photo by E. Troiani)

SONOTUBE Fibre Forms for concrete columns take fewer men to handle because they are lightweight . . . take less time to erect because they require minimum bracing.

Widely used and approved by contractors, engineers and architects everywhere, SONOTUBE provides a fast, economical method of forming round columns of concrete for a multiplicity of structures.

SONOTUBE forms can be supplied in specified lengths or sawed to your requirements on the job. In 31 sizes, from 1" to 36" I.D. up to 24' long. Longer on special order.

SONOCO
SERVING THE WORLD
PAPER CARRIERS
REG. U.S. PAT. OFF.

For complete technical data and prices—write

SONOCO PRODUCTS COMPANY
Construction Products Division
LOS ANGELES CAL. 5955 SOUTH WESTERN AVE
GARWOOD N. J.
HARTSVILLE S. C. — MAIN PLANT
BRANTFORD ONT.
MONTCLAIR N. J. 14 SOUTH PARK STREET
AKRON IND.

mined drive to beat Chevrolet in sales. It's expected that Chevrolet will build another 3,000,000 sq ft of factory floor space in Michigan and 2,000,000 sq ft elsewhere. Chevrolet currently has several plants under way. Pontiac has just announced a 1.3 million sq ft plant expansion.

Reports are that the Fisher Body Division will add over 100,000 sq ft to Flint No. 1 plant, 265,000 sq ft to its Grand Rapids plant, and 89,000 sq ft to its stamping plant in Pontiac, Mich. It's likely to enlarge its stamping plant in Hamilton, Ohio, and its special body plant in Cleveland. There are also reports of a new stamping plant for Pittsburgh.

Some of GM's new plants may be expected to pattern after its Arlington, Tex., dual-purpose plant (equipped to assemble either or both autos and Navy planes). While there have been no recent GM announcements on the subject, new plants probably will be using the automatic-factory principles which is being worked out by Ford.

A number of "ifs" enter into estimates simply because GM is so heavily committed to defense production (about 20% of its more than $9-billion sales volume last year stems from military orders).

Also, the company is widely engaged in such non-auto fields as home appliances, diesels, and locomotives.

But if the major part of the program involves additional capacity for auto production—as Curtice suggested it would—then tooling expenditure is apt to be close to 25% of total outlay, with the balance about equally divided between plant construction and equipment.

Materials prices were stable in December, reports BLS

Building materials prices were stable during December, the Bureau of Labor Statistics reports. Its December index remains unchanged from November at 119.5, based on 1947-49=100. This index is only 1% higher than a year ago.

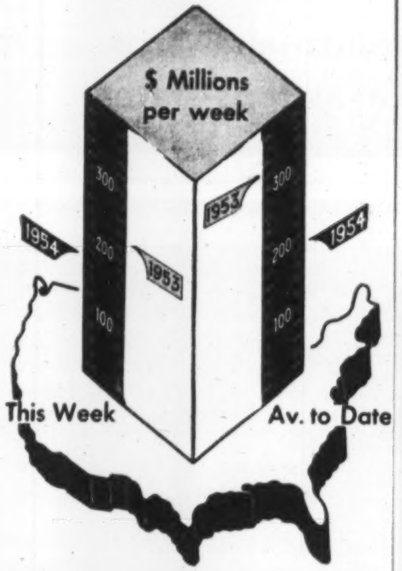
During 1953, the materials components of ENR's Construction Cost Index advanced 0.4%.

Declining lumber prices held down the rise in both the BLS and ENR indexes during 1953. However, lumber and plywood prices firmed in December, according to the BLS index. Concrete ingredients also went up slightly, while concrete products, paint and paint materials, and heating equipment declined slightly.

(*B&F continued on page* 104)

Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

	This Week	Cumulative 4 wks 1954	1953	% chge
Federal	$29.1	$81.1	$184.9	−56
State and municipal ..	63.4	334.9	337.6	−11
Total pub...	92.5	416.0	522.5	−26
Total priv...	78.5	350.3	1,724.1	−52
U. S. total..	**$171.0**	**$766.3**	**$1,286.6**	**−40**

Contracts by type of work

Waterworks .	$2.3	$15.1	$19.0	−21
Sewerage ...	8.6	20.6	24.4	−16
Bridges	3.6	27.6	40.2	−31
Highways ..	14.1	105.0	102.7	+2
Earthwork, waterways .	1.1	27.8	37.2	−25
Buildings:				
Public, excl. hsg.	16.4	129.3	178.0	−27
Housg., pub.	3.4	20.7	69.6	−70
Housg., priv.	33.5	174.5	186.7	−7
Commercial	29.1	79.6	58.5	+36
Industrial..	12.6	84.3	430.0	−80
Unclassified .	46.3	81.8	140.3	−42
Total	**$171.0**	**$766.3**	**$1,286.6**	**−40**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

(millions of dollars)	Week of Jan. 21 1954	Cumulative 3 Wks 1954	% chge 1953-54
Corporate securities	$36.1	$113.5	−34
State and municipal:			
Excluding housing	75.4	134.3	−23
Housing	9.3	10.3	−78
Federal loans	2.9	6.6	−17
Federal aid	...	...	...
Total non-federal..	**$123.8**	**$264.6**	**−34**
Federal approp.:			
In U. S.........	...	...	...
Outside U. S....	...	...	...
Total new capital..	**$123.8**	**$264.6**	**−34**

ENR indexes		Base years = 100 1913	1926	1949
Constr. cost	**Jan '54**	**614.04**	**295.17**	**128.72**
	Dec '53	611.48	293.94	128.19
Bldg. cost	**Jan '54**	**436.88**	**236.16**	**124.19**
	Dec '53	435.90	235.63	123.91
Volume	**Dec '53**	**547**	**222**	**158**
	Nov '53	354	144	102

Less weight • Same strength!

SONOVOID

FIBRE TUBES

for voids in concrete construction

See our display American Concrete Institute Convention, February 22-25—Denver, Colorado, Shirley Savoy Hotel—Booth "D".

SONOVOID Fibre Tubes form voids which reduce the weight of the slab without impairing structural strength. The low-working concrete at the neutral axis is eliminated.

Specifically developed for use in concrete roof, floor, wall and bridge deck slabs, low cost SONOVOID Fibre Tubes save concrete and reinforcing steel. And SONOVOID permits the prefabricating of prestressed and poststressed units.

SONOVOID Tubes can be supplied in specified lengths or sawed to your requirements on the job. Sizes from 2″ to 36.9″ O.D. up to 24′ long. Longer on special order.

For complete technical data and prices write

SONOCO PRODUCTS COMPANY
Construction Products Division
LOS ANGELES, CAL. 5955 SOUTH WESTERN AVE
HARTSVILLE, S. C. — MAIN PLANT
MONTCLAIR, N. J. 14 SOUTH PARK STREET
GARWOOD, N. J.
BRANTFORD, ONT.
AKRON, IND.

SONOCO
SERVES THE WORLD
PAPER CARRIERS
REG. U.S. PAT. OFF.

Chicago gets most industrial awards in postwar period, Texas tops states

The Chicago-Gary district leads all metropolitan areas in volume of large industrial contracts reported by ENR in the eight years since World War II. Out of almost $8 billion in industrial awards over $100,000, the Chicago region has had a total of $503 million (table, below). That's the report just published by the Territorial Information Department, statistical organization maintained by two Illinois utilities, Commonwealth Edison Co. and Public Service Co. It covers the period from July 1, 1945, to June 30, 1953, and provides the most detailed information available on industrial construction trends.

For the year ended last June 30, Los Angeles led with $68 million of big awards, followed by the Philadelphia-Camden area with $50 million.

On number of awards, the Chicago-Gary district is way out in front of all other metropolitan districts, both for the postwar period and for the year ended last June 30. Details on number of awards are also shown in the table.

• **Texas is tops**—Texas is far ahead of all other states for the eight-year period, and also for the latest year. Its eight-year total is $1,374 million. Nearest competitor is Pennsylvania, with $716 million. Ohio comes next with $571 million, and California fourth with $660 million. Illinois ranks only fifth, with $520 million. The rapid expansion in Texas is due to growth of chemical, petroleum, and primary metal facilities.

Breaking down ENR's large industrial awards by industries for the eight-year period the Territorial Information Department finds that primary metals have the record of the highest volume of contract awards—$2,094 million. Chemicals come next with $1,503 million, while petroleum and coal rank third with $1,043 million.

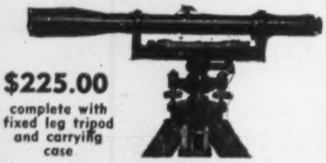
Industrial contract awards over $100,000

(Thousands of Dollars)

	Eight-year period July 1945—June 1953		Twelve-month period July 1952—June 1953	
Metropolitan area	**Contracts**	**Value**	**Contracts**	**Value**
Total	**2,156**	**$3,000,229**	**165**	**$375,900**
Chicago-Gary	454	503,426	40	45,882
Philadelphia-Camden	160	482,934	13	49,900
Houston	164	328,652	13	39,554
Detroit	79	266,798	6	3,395
Los Angeles	182	210,492	12	68,130
Pittsburgh	106	192,527	6	5,800
New York-N. E. New Jersey	143	176,924	11	19,623
Cleveland	112	132,013	11	22,650
San Francisco-Oakland	113	116,667	9	36,713
Kansas City	37	78,432	3	2,702
St. Louis	103	71,283	6	9,808
Cincinnati	17	47,243	2	1,250
Milwaukee	68	46,294	4	5,645
Youngstown	29	45,530	2	11,500
Toledo	35	42,268	3	9,429
Wheeling-Steubenville	18	41,262	1	15,000
Baltimore	65	37,853	5	6,132
Buffalo	9	28,825	1	2,500
Bridgeport	23	27,909	2	8,000
Minneapolis-St. Paul	68	22,783	3	1,909
Indianapolis	24	22,117	..	....
Atlanta	34	19,554	6	4,820
Boston	35	17,750	5	3,700
Providence	29	13,052	1	1,858
Albany-Schenectady-Troy	4	12,219	..	....
Hartford	26	10,452	..	....
Seattle	19	4,970	..	....

The BELMONT IRON WORKS
Engineers — Fabricators — Erectors
Contractors — Exporters
Cable address—Beliron
STRUCTURAL STEEL
BUILDINGS & BRIDGES
RIVETED — ARC WELDED
Shops: Eddystone, Pa.—Philadelphia, Pa.
Royersford, Pa.
Main Office
22nd St. &
Washington Ave.
Philadelphia
46, Pa.
AISC
New York Office
44 Whitehall St.,
N. Y. 4, N. Y.

QUALITY INSTRUMENTS
FINEST JAPANESE OPTICS
Guaranteed Accuracy
Standard American Specifications



$225.00
complete with fixed leg tripod and carrying case
18" DUMPY LEVEL—32X
Coated Lenses
Write for Descriptive Literature
Inquire about other engineering instruments
UNION MERCANTILE CO.
465 California Street San Francisco, Calif.

Diamond
Core
Drilling
CORE BORINGS
for Foundations, Dams, Bridges and all Heavy Structures
GROUT HOLES
Tinney Drilling Co.
Grafton, W. Va.

from
•
•
OFFICE MANAGER
•
to
•
GENERAL MANAGER
•
•
yes, that is the quality of the personnel available to your organization through the Classified Advertising pages of ENGINEERING NEWS-RECORD.
Classified Advertising Division
ENGINEERING NEWS-RECORD
330 W. 42nd St. New York 36, N. Y.

Industrial property prices will be stable, NAREB says

Prices of existing industrial property are expected to stay the same or to go a little higher during the first half of 1954, according to a survey by the National Association of Real Estate Boards. This price situation indicates good prospects for the future of new industrial construction, in spite of current predictions that industrial activity will undergo somewhat of a turn down during 1954.

NAREB surveyed real estate boards in 259 communities, located in 44 states. Nearly three-fourths of them expect that selling prices of existing industrial property will stay about the same for the first half of this year. About 11% anticipate an increase in prices.

In three-fourths of the communities, selling prices of one-story properties are now about the same as they were six months ago, according to the survey. Prices are higher in 9% of the towns in the survey, lower in about 15%.

On multiple-story buildings, prices are the same as six months ago in 71% of the communities, higher in 3%. However, prices were reported to be lower in 26% of the communities studied in this category.

Volume of sales is about the same in two-thirds of the areas reporting to NAREB, on both one-story and multiple-story buildings. However, a decline in sales of multiple-story buildings was listed by a substantial number of real estate boards.

Business briefs . . .

- **$170-million turnpike and bridge financing** is scheduled for March by the Pennsylvania Turnpike Commission and the New Jersey Turnpike Authority. It will be used to build a 100-mi extension to the Pennsylvania Turnpike, connecting it with the Jersey Turnpike via a bridge, plus more roadway facilities for the New Jersey side.

- **Municipal bond issues** set a record of $5,551 million in 1953, about 26% more than in 1952. Nearly all of this goes for new construction. Volume is expected to increase somewhat in 1954.

- **Expansion:** Thompson Products, Inc., of Cleveland, plans to spend $16 million this year in expanding and improving its plants. New building is expected in Euclid, Ohio; **St. Louis,** and Detroit.

UNIT PRICES

Concrete items win dam-powerhouse job in Oregon

By bidding low on concrete-placement for the powerhouse, east fish-ladder, and east non-overflow dam, a combination of Guy F. Atkinson Co. & Ostrander Const. Co. was able to come off with an $18,886,007 contract for powerhouse construction on the Dalles Dam, Wasco county, Oregon. This is the third phase of the project to construct a dam spanning the Columbia River between Washington & Oregon.

Work includes completing the excavation and constructing the substructure for the powerhouse and main unit bays, 15 to 22 inclusive. Excavation for and construction of the east fish ladder and east concrete non-overflow dam are called for.

Weirs and gates will be installed in the powerhouse fish-collection system.

Atkinson-Ostrander underbid their nearest competitors, a combination of eight contractors, by 4% or $768,061. The difference between the bids on the three concrete items alone was $1,212,781. This does not include portland cement on which Atkinson-Ostrander also bid lower by $334,292. The three concrete-inplace items accounted for 38% of the low bid and 43% of the second low.

On the remaining 73 items it was nip-and-tuck with the second-low bidder having the edge. Atkinson-Ostrander bid lower on 29 of the items; the eight-contractor combination was low on 40. Four items were bid the same.

Among these 73 items was included structural and reinforced steel on which the second-low bidder underbid the low bidder by 10%.

In the overall picture, the Atkinson bid was 20% below the highest of five and 6% below the engineers' estimate by the U. S. Army Corps of Engineers, Portland, Oregon.

No starting date has been set for the project, but it is to be completed by April 1, 1956.

Rail, highway, and water transportation are available to the dam site.

Bidders include:

1C	Guy F. Atkinson Co., San Francisco, Calif., & Ostrander Const. Co., Portland, Oregon	$18,886,007
2	Donovan Const. Co.; Winston Bros. Co.; C. F. Lytle Co.; S. Brich & Sons Const. Co.; F & S Contr. Co.; Foley Bros., Inc.; Johnson, Drake & Piper, Inc.; Fegles Const. Co., Ltd; St. Paul, Minnesota	19,654,067
5	Morrison-Kiewit-Macco, Boise, Idaho	23,468,888
EE	U. S. Corps of Engineers, Portland, Oregon	20,056,581

Bids: 12-22-53 Item	Unit	Quantity	Unit Prices 1 C	 2
Uncl exc for cofferdam	cy	5,900	$6.00	$12.00
Govt furn sheet piling	t	3,400	85.00	90.00
Sand & cmt in burlap bags	cy	500	110.00	87.00
Fill in cofferdam cells	cy	88,000	0.97	0.70
Dumped-stone revetment	cy	7,200	2.00	0.80
Remove fill material	ls	1	20,000	10,500
Rem & recondition steel piling	pile	790	30.00	14.00
Conc in cofferdam above water	cy	80	32.00	24.00
under water	cy	325	95.00	98.00
Conc in cell fndn under water	cy	6,000	9.00	8.65
Furn, install, operate initial pump facilities of 10,000 gpm capacity	ls	1	450,000	198,000
additional at 5,000 gpm	ea	3	4,200	16,000
Uncl exc in powerhouse & east non-overflow dam	cy	260,700	2.70	2.81
Uncl exc in east fishladder	cy	46,550	3.00	4.66
Fill	cy	18,000	0.76	0.93
Fill under fishway	cy	13,500	1.25	1.24
Final fndn cleanup	sy	34,000	0.45	2.64
Drill drain holes	lf	16,560	2.00	1.25
Portland cement	bbl	477,560	3.90	4.60
Powerhouse concrete	cy	250,600	21.45	23.00
East fish-ladder concrete	cy	26,950	42.00	66.26
East non-overflow dam conc	cy	77,520	8.70	10.90
Conc tile drain, 4"	lf	175	1.20	1.80
Conc pipe drain, 8"	lf	752	2.70	2.00
CMP drain, half round, 8"	lf	5,600	2.50	2.50
Porous conc drain	lf	140	15.00	14.00
Rubber water stop, 6"	lf	5,500	1.85	2.05
9"	lf	17,600	2.15	2.27
12"	lf	1,700	3.50	4.15
Drill & grout anchor bars	lf	18,440	1.00	1.20
Temporary conc bulkheads	cy	110	60.00	79.00
Tailrace paving	cy	1,600	15.00	9.00
Diffusion chamber gates 4' x 4'	ea	25	4,500	4,081
5' x 4'	ea	14	4,200	4,116
5' x 5'	ea	15	5,000	4,476
Mech equip for weirs & gates, 8'-8" openings	ea	63	4,000	3,392
Mech equip for 17.5' weirs	ea	6	6,000	5,793
30' weirs	ea	6	6,500	6,233
Mech equip for counting station	ls	1	15,000	11,300
Str stl weirs, gates, bulkheads & stoplogs	lb	986,310	0.32	0.30
Reinf stl except str grade dowels	lb	38,809,750	0.106	0.0944
Str grade stl dowels	lb	488,000	0.11	0.12
Str steel	lb	104,420	0.27	0.25
CI pipe & fittings	lb	205,300	0.29	0.35
Stl pipe & fittings 12" & under	lb	118,590	0.44	0.50
over 12"	lb	282,910	0.24	0.40
Valves 6" & under	lb	1,120	1.10	1.00
8" & over	lb	2,830	0.70	0.70
Iron castings	lb	30,330	0.35	0.50
Misc non-ferrous metal & appurtenant fittings	lb	380	3.00	2.40
Rail (all)	lb	337,870	0.17	0.20
Hand railing	lb	120,930	0.55	0.60
Misc stl & met work	lb	364,550	0.40	0.42
Corrosion-resisting clas steel plate	lb	516,330	0.60	0.50
Corrosion-resisting stl	lb	130,510	0.91	0.70
Str stl for guides & storage latches	lb	3,110,800	0.33	0.31
Diffusion chamber grilles	lb	195,760	0.24	0.30
Stl gratings, roadways	lb	135,300	0.28	0.33
Misc architect features	ls	1	50,000	25,000
Conc drain & sewer pipe 6" & 8"	lf	410	2.00	6.00
Asph conc paving	sy	3,610	3.00	3.60
Stl conduit, fittings & outlet boxes	lb	152,200	0.85	0.66
Elec cabinets & boxes, galv sheet metal	lb	7,340	2.00	1.10
Galv CI boxes	lb	5,410	2.50	1.70
Non-metallic conduit & fittings	lb	21,180	0.65	0.35
Misc auxiliary & power control equipment	ls	1	5,000	6,400
Bare copper ground conductor & fittings	lb	9,400	2.00	1.42
Cable trays & supports	lf	4,210	6.50	5.60
Light sys fixtures, switches, receptacles, panel boards & wire	ls	1	110,000	52,800
Lighting standards	ea	65	350.00	354.00
Indoor load center unit substations	ls	1	75,000	62,700
480-volt control centers	ls	1	60,000	60,000
Dry-type lighting transformers	ls	1	7,500	2,970
Electric heaters	ls	1	2,500	1,490
Power, control & communication wire and cable	lb	21,350	2.50	2.20
F&I staff gage	lf	42	10.00	20.00
Railroad constr on fill	trf	540	10.00	10.00

OFFICIAL PROPOSALS

RATE: **The rate for Official Proposal advertising is $1.50 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.**

CLOSING DATE: **Friday 10:30 A.M. for issue dated the following Thursday.**

SEND COPY TO: **Official Proposal Division,**
Engineering News-Record
330 West 42nd Street
New York 36, N. Y.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4110) will be received at Albuquerque, New Mexico, until February 18, 1954, for furnishing labor and materials for earthwork, clearing, and structures for rehabilitation of drains, Unit BW-2, Middle Rio Grande Project, New Mexico. Location near Belen, New Mexico. Principal items are: 6,900 cu. yds. excavation; lump sums, clearing and cleaning drains and removing existing structures; 1,600 lin. ft. corrugated-metal pipe and arches; 11,600 lbs. metal cut-off collars and slide gates; and other work. Completion time 330 days. For particulars, address Bureau of Reclamation, Albuquerque, New Mexico; or Building 53, Denver Federal Center, Denver, Colorado.

W. A. DEXHEIMER, Commissioner

Bureau of Reclamation, North Platte River District—11254-P4, Casper, Wyoming. For Immediate Release January 12, 1954. UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703C-327 for furnishing labor and materials and performing all work for earthwork and buried asphaltic membrane lining, Casper Canal, stations 393+00 to 401+00 and 406+00 to 413+00, and station 729+50 to station 745+94.2, Kendrick Project, Wyoming, will be mailed to P. O. Box 280, Casper, Wyoming or delivered to the office of the Bureau of Reclamation in time for the public opening at 10:30 a.m., Mountain Standard Time, February 11, 1954, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming. Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, Box 280, Casper, Wyoming. The specifications will consist of 2 volumes, "Special Provisions" and "Standard Specifications for Construction of Canal Systems, August 1951." No charge will be made for copies of the Standard Specifications or for copies of the Special Provisions furnished for bidding purposes; for others the charge will be $0.30 per copy for the Standard Specifications and $0.50 per copy for the Special Provisions, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

Bids: February 15, 1954

Filtration Units No. 3 & 4 and Filtered Water Reservoirs No. 4 & 5 Patuxent Filtration Plant

WASHINGTON SUBURBAN SANITARY COMMISSION

CONTRACT NO. 1342-W

Sealed proposals for the furnishing and erecting, on foundations prepared by others, of two filtration units, of 16.7 Mgd rating each, and two filtered water reservoirs, of 2.84 Mg capacity each, will be received at the office of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland, until Monday, February 15, 1954 at 2:00 P. M., Eastern Standard Time, at which place and time they will be publicly opened and read.

Plans and specifications may be obtained from the office of the Chief Engineer of the Commission, Hyattsville, Maryland, upon deposit of $50.00, which deposit will be returned to bidders or to those returning plans and specifications in good condition.

Raymond W. Bellamy
L. S. Ray
J. Norman Ager
Commissioners

Attest:
James B. Parkhill
Secretary-Treasurer

Bids: February 11, 1954

Furnishing of One Hydro Sky-Worker Truck

THE PORT OF NEW YORK AUTHORITY
ONE HYDRO SKY-WORKER TRUCK

PROPOSAL NO. 354

Sealed proposals for furnishing one Hydro Sky-Worker Truck for delivery to New York International Airport, Jamaica, N. Y., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111 8th Ave., New York 11, until 11:00 A.M. (E.S.T.) Thursday, February 11, 1954, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

Bids: February 17, 1954

Construction of Sewerage System

VILLAGE OF CROTON-ON-HUDSON, NEW YORK

Sealed proposals for the construction of Contract VII—Sewerage System, will be received by the Mayor and Board of Trustees at their office in the Municipal Building, Van Wyck Street, Croton-on-Hudson, New York, until 8:00 P.M. Eastern Standard Time on February 17, 1954, after which time they will be publicly opened and read. No bids will be accepted after said hour.

Information for Bidders, Proposal Form, Contract form, Plans and Specifications and other pertinent Contract Documents, may be examined at the offices of Bowe, Albertson & Associates, Engineers, 110 William Street, New York City, New York and at the office of the Village Clerk, Municipal Building, Croton-on-Hudson, New York, between the hours of 10 a.m. and 4 p.m. daily except Saturdays, Sundays and Holidays, and obtained from the offices of the Engineers upon making a deposit of Twenty-five ($25.00) dollars, which will be refunded to bidders within thirty (30) days after the date of the opening of proposals upon return of the Contract Documents undamaged.

A certified check or bid bond made payable to the order of the Village of Croton-on-Hudson, New York, in the amount of 5% of the bid must be deposited by each bidder with his bid as a guarantee that, in case the contract is awarded to him, he will execute such contract and furnish a satisfactory Performance Bond and Labor and Material Bond. Acceptance of the bid will be contingent upon fulfillment of this requirement by the bidder and on failure to do so, he shall forfeit the deposit.

The successful bidder will be required to furnish a Performance Bond and Labor and Material Bond in statutory form and with sureties authorized to do business in the State of New York, which bonds shall be in the amount of the contract.

The Village of Croton-on-Hudson reserves the right to reject any or all bids, to waive any informalities or to accept the bid which in its judgment will be for the best interests of the Village of Croton-on-Hudson.

VILLAGE OF CROTON-ON-HUDSON,
NEW YORK
By: Fred B. Dorner, Mayor
DATED: January 28, 1954
BOWE, ALBERTSON & ASSOCIATES
Engineers

INSURE COMPETITION

and get the lowest possible bid for your proposed work by placing your bids wanted advertising in this Section.

Don't limit competition to local bidding alone. Bring it to the attention of contractors the country over. They read this Section every week—make sure your bid is here where they can read it.

OFFICIAL PROPOSALS

U. S. Governm[illegible]

DEPARTMENT OF THE I[illegible]R, Bureau of Reclamation. Sea[illegible] (Specifications No. DC-4104) wil[illegible]ceived at Folsom, California, until [illegible] 16, 1954, for furnishing labor and m[illegible]s for completion of Folsom Power Pla[illegible] and Switchyards, Folsom Unit, American River Division, Central Valley Project, California. Location near Folsom, California, in Sacramento County. Principal items are: Installation of nonembedded parts of three 74,000-hp hydraulic turbines, governors and associated hydraulic equipment; installation of electrical equipment and materials for the power plant, except generators; completion of power plant building and miscellaneous installations; construction and installation of switchyards and connecting transmission lines; and other work. Completion time 445 days. For particulars, address Bureau of Reclamation, Folsom, California; or Building 53, Denver Federal Center, Denver, Colorado.

W. A. DEXHEIMER, Commissioner

OFFICIAL PROPOSALS

Bids: February 16, 1954

1949

New Jersey Turnpike Authority

CONTRACT NO. 110

Sealed proposals are invited for Contract No. 110 which involves the construction of sewage treatment facilities, at Service Area 8-N located on the New Jersey Turnpike in East Brunswick Township, Middlesex County, including a connecting sewer from the existing building to the sewage treatment plant.

Proposals will be received at the office of the New Jersey Turnpike Authority, Administration Building, New Brunswick, New Jersey, until 11:00 A.M., Eastern Standard Time, on the morning of February 16, 1954 at which time and place proposals will be publicly opened and read.

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority.

Contract documents may be seen and may be inspected by prospective bidders during regular office hours after January 25, 1954 at the office of the Authority, and at the office of the Consulting Engineer, Elson T. Killam, 529 Millburn Avenue, Short Hills, New Jersey. Contract documents will be furnished upon deposit of fifteen ($15.00) dollars for each set, upon application to the Authority. The deposit will be refunded if the contract documents are returned, in good condition, to the Authority within fifteen (15) days after the receipt of the proposals.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

Bids: February 9, 1954

Construction of High Bridge

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Department for:

HIGH BRIDGE-CRESTMOOR ROAD

Construction of High Bridge-Crestmoor Road, Section 1 (County Road No. 23) from Bunnvale to High Bridge Borough Line, Lebanon Township, Hunterdon County, Federal Aid Secondary Project No. S-183(1). Length 1.042 miles. The principal items of construction are:

Estimated:

2,907	cu. yds. Roadway Excavation
2,483	cu. yds. Borrow Excavation
1,050	tons Macadam Base Course
13,000	sq. yds. Mod. Pen. Macadam
1,095	tons Bituminous Concrete
950	lin. ft. Beam Guard Rail

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, February 9, 1954, at eleven o'clock (11:00 A.M. EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements, and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 24 Main Street, Flemington, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Ave., Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:

STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Contractors—

You have made the BID

You have other jobs to Complete

The Equipment to use on either a Rental or Purchase basis will be found on these pages. Check them NOW and see the Savings you can make.

CLASSIFIED **SEARCHLIGHT SECTION** ADVERTISING

EMPLOYMENT • BUSINESS • **OPPORTUNITIES** • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)

$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

POSITION WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.50 a line an insertion.

INFORMATION:

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:

The advertising rate is $17.10 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 7/8 inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York Office, 330 W. 42nd St., N. Y. 36 for February 11th issue closing February 1st.

WANTED

GENERAL MANAGER

Construction Equipment Distributor Nationally Advertised Allied Lines— No Crawler Tractors

Outstanding salesman with managerial abilities who can furnish proven record of sales and be willing to prove sales ability while training for this position. Age between 30-40. Must be dynamic driver, stable, temperate and earnest. Successful applicant will be given opportunity to purchase interest in business through earnings. In reply send photograph (if possible) and complete personal history statement and references. Confidence will not be violated. Do not apply unless you can fully meet these qualifications.

SOUTHERN GATEWAY CO.
2200 Losantiville Ave., Cincinnati 13, Ohio
Melrose 4282.

MATERIALS INSPECTORS
WANTED

By the Tennessee Valley Authority for inspection of major electrical and mechanical equipment and materials at manufacturing plants located in cities such as Birmingham, New York, Philadelphia, Pittsburgh, Milwaukee, Schenectady and Chicago.

Work includes inspection of material and equipment during all stages of manufacture, witnessing factory tests, conferring with shop officials, and preparing reports on inspection progress and test results.

Persons having experience in actual inspection work in factories producing materials and equipment used in construction of hydro and steam electric generating plants are desired.

Entrance salaries are $4575 and $5450 a year for 40 hour week. Vacation, sick leave, and retirement benefits.

Write to the
TENNESSEE VALLEY AUTHORITY
Division of Personnel
KNOXVILLE, TENNESSEE

Civil Engineer (Graduate)

with ability to translate technical Swedish to English and vice versa. General knowledge of heavy construction experience and tunneling desirable.

Submit complete resume, references, date of availability and salary requirements in first communication.

P-1429, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

BRIDGE ENGINEERS

Recent Civil Graduate of accredited U.S. colleges. Should have not less than the following experience on bridges:

Detailers—2 years structural steel or reinforced concrete detailing.

Designers—5 years responsible work on structural steel and concrete including work on long span bridges.

Squad Leaders—3 years responsible charge of squad on structural steel detailing.

Please mail complete resume together with salary required to:

Howard, Needles, Tammen & Bergendoff
55 Liberty Street New York 5, N. Y.

WANTED

Mechanical Superintendent

Experienced in mechanical and process piping work relating to refineries, chemical plants, compressor plants, paper mills and manufacturing plants. Must have first hand knowledge of piping, rigging, millwrighting, welding and boilermaker work. Location West Coast, principally California. Submit experience record, references, availability, salary expected.

P-1379, Engineering News-Record
1111 Wilshire Blvd., Los Angeles 17, Calif.

WANTED

SEWAGE TREATMENT PLANT SUPERINTENDENT

For plant located in New England. Man to have responsibility of operating and maintaining a new sewage treatment plant and a system of interceptor sewers.

Must be experienced in operation and maintenance of large sewerage works and must be graduate engineer.

Reply by letter giving pertinent particulars to

P-1280, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

JR. CIVIL ENGINEERS FOR CALIFORNIA

Permanent positions in California's huge highway program. Wide choice of locations. High-grade professional experience. Open to CE graduates or to non-graduates with 2 years' experience. $376 to start, raise in six months. Positions open at this level only.

STATE PERSONNEL BOARD
1015 L Street Sacramento 14, Calif.

DRAFTSMEN

Are you interested in permanent position in Eastern Virginia with progressive firm? New air-conditioned office, 40-hour week, overtime, hospitalization and group insurance plans, paid vacations. If you have had some experience in detailing or checking of Reinforcing Bars, Steel Joists, Windows, etc., reply giving brief and complete resume of experience, education and availability.

P-1126, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW York: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

BUILDING ESTIMATOR and Quality Take-Off Man. Graduate Engineer preferred. Thoroughly experienced, permanent position with well stablished contractor with top-notch organization bidding competitively public works and commercial buildings throughout the South. Stanley W. Newman Company, Inc., P. O. Box 1646, Mobile, Alabama.

WANTED — CONSTRUCTION Superintendent. State age, experience, past 10 years. Salary and bonus basis after job. P-1259, Engineering News-Record.

ENGINEER—WANTED Mid-Western Cement Plant is looking for an engineer experienced in concrete construction to travel as field service engineer. For complete details, Write: P-1415, Engineering News-Record.

ROAD DESIGNERS Wanted. Experienced preferred. Permanent—38 hour week—Retirement plan. Reply stating experience, education, age. Wyoming Highway Department, Cheyenne, Wyoming.

CIVIL, HIGHWAY, and Bridge Engineers, Designers, Draftsman, Surveyors and Corpsmen for permanent assignment on large Highway, Expressway and Bridge Program. Location Mid-Atlantic States. An opportunity with a progressive and expanding organization for producers of quality work. Submit resume; age, education, experience, title and duties, references, and salary required. P-1351, Engineering News-Record.

CIVIL ENGINEER—Well established company located in Southeastern part of the country has an opening for a graduate civil engineer who is capable of estimating bridges, docks, roads, airports and other heavy construction projects. Real opportunity for the right man. P-1431, Engineering News-Record.

WELL ESTABLISHED detailing concern — N. Y. C., Phila. area—needs fast accurate steel detailers, checkers. Usual privileges. Salary plus cash profit sharing every job. Give complete experience resume. P-1497, Engineering News-Record.

(Continued on opposite page)

POSITIONS VACANT

(Continued from opposite page)

STRUCTURAL ENGINEER and Detailer. Foreman Education and Degree desirable but not required. 4-years experience detailing absolutely essential. Shop and estimating experience helpful. Small shop in middle west doing light structural, miscellaneous & reinforcing. We are looking for top man who has reached a block in his present position and has capabilities of eventually assuming complete responsibilities. P-1434, Engineering News-Record.

JUNIOR STRUCTURAL designer for contractor's engineering office, N. Y. C. Industrial structures, primarily concrete. Graduate engineer, service discharge. Some field experience preferred. Salary $6,500. P-1428, Engineering News-Record.

HALF-TIME Graduate and Research Assistants in eastern college; earn M.S. or Ph.D. in C.E., or M.S. in Applied Mechanics. Research or teaching in structural steel, prestressed concrete, hydraulics, soil mechanics, material testing, engineering drawing $1200 for school year, plus tuition. P-1502, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

SALESMEN, EXPERIENCED. For pump and wellpoint buiness. Established performance record. To go anywhere. Replies confidential. SW-1260, Engineering News-Record.

SALES ENGINEER—Pittsburgh, Pennsylvania and Albany, New York territories open with established national concern selling prefabricated metal products to engineering and construction markets. Positions offered are permanent and present excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. Car furnished. Complete training program. Salary and bonus. RW-1420, Engineering News-Record.

POSITIONS WANTED

CIVIL ENGINEER—MCE in Soil Mechanics and Foundation Engineering. 27, single. 4 years of varied experience in field exploration, design, and construction (3 years in responsible charge). Present salary approx. $7500. Will travel. Available in 2-3 months or sooner, if necessary. Foreign service preferred. Salary commensurate with responsibility. PW-1403, Engineering News-Record.

PROJECT MGR. Construction Supt. Engineering education. 50 years of age, free to travel, 26 years experience in Industrial Building costs, would make excellent Contractor's assistant. Resume upon request. PW-1328, Engineering News-Record.

CONSTRUCTION EXECUTIVE now employed in middle West, wants new connection in South or on West coast. Experience includes Field Supervision, Estimating and Bidding, Cost Controls, Sub-Contract Administration, Owner-Architect relations Equipment Selection, Financial Management. Able to assume full responsibility in building contractor's organization. PW-1424, Engineering News-Record.

CIVIL ENGINEER, graduate. Eleven years experience in construction supervision, cost estimating, planning, reconnaissance and location surveys, design, and coordination of roads, railroads, industrial buildings, power distribution stations, airfields, and small communities in the U.S.A., Europe, and Japan. PW-1253, Engineering News-Record.

ENGINEER B.C.E., M.S.C.E. 10 years field, office. Responsible Construction position New York or Long Island. PW-1254, Engineering News-Record.

GENERAL SUPERINTENDENT available thoroughly experienced on Sewers, Subways, Bridges, and Plants. Location anywhere. Splendid references. PW-1406, Engineering News-Record.

CIVIL ENGINEER 29, BCE, MCE candidate. 3 yrs. varied experience in Sanitary, Highways, Structures, Estimating and Teaching. Desires position in N. Y. or L. I. PW-1504, Engineering News-Record.

PARTY CHIEF—Highway, R.R. Experience. Construction, location, boundary, property surveys. Foreign, domestic. Warm climate. PW-1314, Engineering News-Record.

REGISTERED HIGHWAY engineer and land surveyor. 30 years experience, 7 years construction superintendent highway and bridge construction. State side or offshore. PW-1397, Engineering News-Record.

PROJECT MANAGER. Construction Supt.—28 years experience Industrial buildings & Machinery and heavy foundations. Good manager, available immediately. Desire Southeastern States. PW-1236, Engineering News-Record.

POSITIONS WANTED

CONSTRUCTION ENGINEER. Reg. Mature executive, experienced construction, estimating, specifications, design, maintenance, commercial, industrial buildings, housing. Contract management, sub-contracting. Some foreign experience, languages. Will go abroad. PW-1387, Engineering News-Record.

CONSTRUCTION ENGINEER—C.E. graduate with 25 years successful experience supervisory capacity both field and office. Sound knowledge all phases general construction and some industrial chemical. Seeking connection where top man required. PW-1307, Engineering News-Record.

PROJECT MANAGER or General Superintendent desires connection with construction company doing foreign or domestic work. Broad experience in negotiation, estimating, organizing and supervision of all types of heavy construction as well as in over-all management. Highest references. PW-1505, Engineering News-Record.

CIVIL ENGINEER B.S.C.E., 25, single, 3 years diversified field experience in heavy construction. Locate anywhere domestic or foreign. Spanish fluent. PW-1501, Engineering News-Record.

ENGINEER, LADY, B.C.E. Cum Laude. 5 years experience structural design, estimating and detailing. 2 years construction office. Seeks situation in New York where knowledge, ability and capacity for hard work are not considered foreign to the female of the species. PW-1498, Engineering News-Record.

CIVIL ENGINEER Grad. 26, personable, 3 years highway, drainage design, estimating. Desires position New York area, Sales, promoting, expediting. PW-1487, Engineering News-Record.

CONSTRUCTION ENGINEER-Superintendent, 20 years experience hydro-electric dams, powerhouses, cofferdams, bridges, housing projects, industrial buildings and equipment on world's largest construction project. Desires South or Southeast. Detail information and references upon request. Address: PW-1484, Engineering News-Record.

PROJECT, CONSTRUCTION, management engineer 18 years public works experience. Buildings, Utilities, Airfields, Highways, Hydrographic, Cadastral Surveys. Available anywhere February. PW-1486, Engineering News-Record.

CIVIL ENGINEER: 5 years expeirence; 3½ in heavy construction, 1½ in design, desires outdoor position leading to responsibility with general contractor or engineering firm. Mid-west or South. PW-1467, Engineering News-Record.

GENERAL SUPERINTENDENT available soon. 20 years experience in building construction. PW-1447, Engineering News-Record.

GENERAL CONSTRUCTION Superintendent (Residential) desires position. General construction experience, but residential project development preferred. Employment and education resume furnished upon request. PW-1470, Engineering News-Record.

CONSTRUCTION ENGINEER Supt. Recently completed refinery construction project in Middle East. 15 years experience in heavy construction, desires new connection preferably foreign. PW-1471, Engineering News-Record.

CIVIL ENGINEER, BCE, age 27, 5 years field experience, desires position in construction or design with engineering firm located in East. PW-1523, Engineering News-Record.

CIVIL ENGINEERING employee desires position with engineering firm. Have had responsible engineering experience in various capacities in office and field on paving, sewers, waterworks and other municipal projects. Available. Locate anywhere. PW-1410, Engineering News-Record.

Engineers—Foremen—Office Men

Learn latest methods to organize and run work. Prepare for the top jobs.

Send post card for details.

GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
411 So. 5th Ave. Lake Worth, Florida

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations Forty third year.
[illegible]
WILSON *Engineering Corp*
College House Offices HARVARD SQ. CAMBRIDGE MASS

SELLING OPPORTUNITIES WANTED

FORMER SALES Manager, 20 yrs. experience with large equipment manufacturer, wishes to represent industrial and construction equipment and material accounts for the western part of N. Y. State. RA-1469, Engineering News-Record.

SALES ENGINEER—3 years sales, sales promotion, leading equipment manufacturers; 5 years executive assistant, (sales, advertising, promotion) top flight construction organization, contacting top management; 10 years engineering and construction; enthusiastic, adaptable, promotional minded; graduate engineer, 39, sales, public speaking training; references; interested Southwest, South, mfr. or distributor. SA-1503, Engineering News-Record.

WORK WANTED

Structural Design Work Wanted. Registered Structural Engineers desire sub-contracts for design, preparation of drawings, detailing struct. steel & reinf. conc. for buildings, bridges & special structures. WW-9894, Engineering News-Record.

WANTED

ANYTHING within reason that is wanted in the field served by Engineering News-Record can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

GLAZER STEEL Corp.

Structural and Plate Steel Fabricators

Open capacity for quick delivery now available. We solicit your inquiries for Steel Fabrication and Warehouse Steel Products. Let us figure your jobs . . . Large or Small.

P. O. BOX 1390 KNOXVILLE, TENN.
Phone 4-8601

GIANTS UNDER THE EARTH
The Construction of the Brooklyn-Battery Tunnel
This is the story of the key men of the miraculous 20th century—those hardy human sandhogs who dug under water and blasted through earth and rock to build the slick, modern tunnels we use today for fast motor and railroad traffic.
Illustrated and photos. Per copy....................$1.00
Send check or money order to
PATRICK J. COSTELLO
152 E. 46th St. New York 17, N. Y.

FOR SALE

STEEL BIN, Covered

Approximately 25' diameter, 32' high. On highway and railroad near Birmingham. Address inquiries

P. H. HASKELL, JR.
P. O. Box 2002 Birmingham, Alabama

FOR SALE

SIX—500 CU. FT.
INGERSOL-RAND DIESEL DRIVEN
AIR COMPRESSORS
Mounted on Pneumatic Tires—Good Condition
CONTRACTORS TRADING & EQUIPMENT CORP.
232 FULTON ST - N.Y. 7, N.Y. BArclay 7-3840

WANTED

2½ to 3 yard shovel high lift drag. Exchange for good equipment, fair basis. Have 2—300 H. P. atlas Imperial Diesel generators and all controls 2300 V.

1—500 K.W. Westinghouse 1200 R.P.M. M.G. Set 2300-250

2—150 G.E. Sets and controls all A1 condition

1—8 ft. drum hoist and electric motors

2—24 inch 2 drum hoist 80 H.P. electric motor 80 H. P.

A. M. PARK Lincoln, Illinois

DIESEL POWER

IMMEDIATE SHIPMENT

• PURCHASE OR RENTAL

UNIT CAPACITIES—10 TO 2475 KVA

A.C.—50 AND 60 CYCLES

• ALSO D.C. UNITS

A PARTIAL LISTING OF OUR INVENTORY

KW	Make	Model	HP	RPM	KW	Make	Model	HP	RPM
1980	Nordberg	TS-217	2800	225	320	Enterprise	DSG-6	560	450
1136	Fairbanks Morse	38D	1600	720	300	General Motors	8-268A	450	1200
1100	General Motors	16-278A	1600	720	200	General Motors	8-268A	350	900
750	General Motors	12-567	1080	720	150	Worthington	CC-4	225	450
500	Baldwin	VO-8	750	514	150	Ingersoll-Rand	S-4	225	600
500	General Motors	8-278A	750	720	150	Buckeye	80	240	600
500	General Motors	8-567	720	720	100	Worthington	BB-5	150	600
480	Worthington	DD-8	700	360	100	General Motors	3-268A	150	1200
400	Ingersoll-Rand	S-8	600	720	60	General Motors	6-71	90	1200
350	Baldwin	VO-6	510	450	30	Internat'l Harvester	UD-14	45	1200

A. G. SCHOONMAKER COMPANY, INC.

ENGINE DIVISION, 50 CHURCH ST., NEW YORK 7, N. Y.

FOR SALE

New and Used material—Immediate delivery from stock Angles, Channels, I and WF Beams, especially for Contractors needs

H BEAMS PILE SECTIONS

60 pcs 12" B P S 53# 60'
16 " 12" B P S 74# 75'
16 " 10" B P S 57# 67' 6"
34 " 10" B P S 42# 48'
23 " 10" B P S 42# 60'

Phone or Wire your steel requirements

We are also interested in purchasing your surplus material.
We assure you our prices will be the best obtainable.

HY DRACHMAN STEEL CORP.

Warehouse
14-23 34th Avenue, Astoria, New York
AStoria 8-4484 8-8023

Sales Office
563 East Tremont Ave., New York City, N. Y.
CYpress 9-5440

FOR QUICK, DEPENDABLE

COMPRESSOR

SERVICE

AMERICAN AIR of JERSEY

GAS • DIESEL • STEAM • ELECTRIC

SELL—BUY—TRADE—RENT—REPAIR

A RENTAL COMPRESSOR FOR EVERY JOB

55 CFM Lindsay (GAS) Portable
60 CFM Worthington (GAS) Portable
70 CFM Smith (GAS) Portable
89 CFM 6 x 7 Worthington HB, 15 HP Elec
105 CFM Worth-IR-CPT Portable
107 CFM 7-7 x 7 Ingersoll FS-1 STEAM
129 CFM 7½ x 7 American AF-1, 20 HP
142 CFM Ingersoll Semi-Portable 25 HP
160 CFM IR-Worth Portable
165 CFM Smith 110SR Semi-Portable, 25 HP
195 CFM 8-9 x 9 Worthington HS STEAM
210 CFM Worthington (GAS or DIESEL) Port
211 CFM 9 x 9 Worthington HB, 40 HP Elec
279 CFM 11-10 x 11 Worthington HS STEAM
294 CFM 10 x 12 Worthington HB, 50 HP
315 CFM Worthington (GAS or DIESEL) Port
387 CFM Gardner Semi-Portable 75 HP
445 CFM Gardner Semi-Portable 100 HP
462 CFM 12-14½ x 13 American AF-S STEAM
500 CFM Worthington (DIESEL) Portable
538 CFM Worthington Semi-Portable, 100 HP
600 CFM Worthington (DIESEL) Portable
628 CFM 14 x 13 Ingersoll ES-1, 100 HP

MANY OTHERS TO CHOOSE FROM

GUARANTEED PERFORMANCE

COMPRESSORS SINCE 1902

American
AIR COMPRESSOR CORP.
DELL AVE. & 48th ST. NORTH BERGEN N. J.
Telephone UNion 5-4848

LOCOMOTIVES

1—Plymouth—6 Ton 30" Ga.—Gas.
2—Plymouth 8 Ton Gas. Std. Ga.
2—G.E. 44 Ton—Heavy Duty Diesel Elec.—1951.
2—G.E. 25 Ton—Diesel-Elec.—1951.
Brookville 6 Ton—36" Ga. Diesel.
1—Brookville 3 Ton—Gas—24" Ga.—#3042.
2—Brookville—12 Ton—STD. GA.—Diesel—New.
1—Whitcomb—30 Ton—Diesel—Std. Ga.—Like New. #40154.

1—WHITING TYPE B
35 TON—PIT DROP TABLE NEW BARGAIN
SOUTHWARK 500 TON HYDRAULIC
PRESS—HIGH-SPEED—LIKE NEW

2—Conway Mod. 75 Muckers, #256 & #305.
Southwark 100 Ton Hydraulic Press.
Mundy 2-Drum Elec. Hoist—300 H.P. Like New.
Bridgeford Axle Lathe.
Orton 30 Ton Diesel Locomotive Crane. Modern.
Heil Diesel Crane—Model M-15 13-Ton—20' Boom.
2—50 Ton Twin Hopper Cars.

R. H. BOYER
2005-13 W. Bellevue St. Philadelphia 40, Pa.
Phone Sagamore 2-7132

For Rent

SPEEDCRANES

LATE MODELS

Manitowoc Diesel Powered Speedcranes for rent. 25, 40 and 80 ton capacities with booms 100' or more, 20' and 30' jibs. Special price on long rentals.

FORSYTHE EQUIPMENT CO., INC.
37-11 Vernon Blvd. Long Island City, New York
Tel. STillwell 4-1030

SALE OR RENT

1—780 CFM Chi. Pneu. OCE Comp. direct connected to 125 HP Syn. Motor, new 1944
1—45 Ton Clyde Whirley 100'B. 3/60/440V
1—⅝ Ton B-S Tandem Roller
1—½ Yd. Bay City Model 25 Crane
1—2 Yd. Link Belt 375 Dragline
1—2½ Yd. Northwest 95 Dragline
1—30 Ton Orton Diesel Loco. Crane
1—20 Ton Bay City Model 180 Truck Crane
1—35 Ton P&H 355 Truck Crane, new 1952
1—25 Ton G.E. Diesel Elec. Loco.
1—30 Ton Plymouth Gasoline Loco.
1—45 Ton G.E. Diesel Electric Locomotive
1—65 Ton Whitcomb Diesel Elec. Loco.

B. M. WEISS COMPANY
Girard Trust Company Bldg.
Philadelphia 2, Pa.

FOR SALE or RENT

1¾ yd Manitowoc 3000A diesel cranes 65' boom. Cat. D13000 engine.
½ yd Link Belt LS50 Backhoe-Crane.
10 ton Unit No. 1020 Pneu. Tired Crane.
30 ton Industrial Brownhoist Gas Locomotive Crane. 70' bm.
44 ton GE Diesel-Elec. Loco. new 1951.
25 ton GE Diesel-Elec. Loco. new 1950.
30 yd Western & Koppel Air Dump Cars.
25 ton Wiley Steel Stiffleg Derrick.
1200 CFM Ing. Rand XRE, 200 HP Air Compr.
130 HP Christian 2D Diesel Hoist.
60 ton Clyde Elec. Revolver or Gantry.

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust Street St. Louis 1, Mo.

PILE DRIVING EQUIPMENT

Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Drop Hammers - Driving Caps
Steel Leads - Pile Driver Hose
Hoists and Boilers

CONTRACTORS MACHINERY CO.
Phone VAlentine 4740
2637 SOUTHWEST BLVD
KANSAS CITY 8, MO.

SURPLUS EQUIPMENT

FOR SALE OR RENT
With Option to Purchase
Rebuilt—A1 Condition

1 48B Bucyrus Erie Shovel 2 cy diesel
1 Model 6 N.W. Shovel 1½ cy diesel
1 Caterpillar D8 Bulldozer
1 New Shovel Front for Model 6 N.W.
1 Used Shovel Front for Model 25 N.W.

WILLIAMS CONSTRUCTION COMPANY
Box 145 Balto, 20, Md. Phone—Murdock 6-6600

NEW AND REBUILT
STORAGE BATTERY

LOCOMOTIVES

1½ to 10 Ton — 18" to 56" Track Gauge
GREENSBURG MACHINE CO.
Greensburg, Penna.

REMEMBER
PARDNER
THERE'LL BE

5 BIG DAYS

FOR THIS
EQUIPMENT
ROUNDUP

ROSS & ROSS

AT BROWN & ROOT INC., TANK DIVISION YARD & BLDG., 4289 CALHOUN RD.

HOUSTON, TEXAS

ROSS & ROSS

AMERICA'S LARGEST ! ! ! AMERICA'S LARGEST ! ! ! AMERICA'S LARGEST ! ! !

PUBLIC AUCTION SALE

CONSTRUCTION, ROAD, FARM, MARINE, OIL FIELD, PIPE LINE, ELECTRICAL & AUTOMOTIVE EQUIPMENT

Over 155 Crawler & Wheel Type Tractors ● 56 Crawler & Truck Cranes, Shovels & Backhoes ● 110 Motor Graders ● 25 Ditchers ● Scrapers ● Motor Scrapers including Tournapulls & Model D Roadsters ● 3-Wheel & Tandem Rollers ● Pavers ● Locomotives ● Over 100 Compressors, up to 1600 cfm ● Clam & Drag Buckets ● Diggers ● 95 Trucks & Truck Tractors ● 26 Trailers, including Semi, Pole & Lowboy ● Line Trucks ● Jeeps ● Sheepsfoot Rollers ● Mississippi Wagons ● 25 Portable & Truck Mixers ● Lumber Carriers ● Wagon Drills ● 44 Fork Lift Trucks ● Car Scoops ● Power Wagons ● Hoists ● Winches ● 50 Pumps, up to 12"

Several Dredges (including dredge "TEMPLE", 12" discharge and 15" suction) ● Many Boats (including Cruisers from 20' to 80' ● Also large quantities of other marine equipment.

Gyratory Crushers ● Conveyors ● Tar Kettles ● 140 Welding Machines ● 50 Light Plants ● Over 500 Electric Motors, up to 1500 H.P. ● Electric Furnaces ● Large Transformers ● Generator Sets ● 25 Power Units ● Electric Magnets ● Vibrators ● Air Hammers ● Pavement Breakers ● Sand Pumps ● Concrete Pumps ● Pulvimixers ● Traffic Markers ● Shop Cranes ● Boilers ● Space Heaters ● Saws ● Scales ● Lathes ● Shears ● Cadillac Automobiles ● Airplanes ● Miscl. Shop Tools & Equip. ● Office Equip. ● Thousands of other items too numerous to mention.

10 A.M.
DAILY

FEBRUARY

TUESDAY 16th, WEDNESDAY 17th, THURSDAY 18th, FRIDAY 19th & SATURDAY 20th

10 A.M.
DAILY

60 DAYS TO PAY

FOR FURTHER INFORMATION IN HOUSTON
Call or Write
HERB E. CARTER, ROSS & ROSS REPRESENTATIVE
c/o BROWN & ROOT INC. 4289 CALHOUN ROAD
HOUSTON, TEXAS PHONE ATwood 5114

SEND $1.00 (Mailing Cost) FOR DESCRIPTIVE CATALOG

SALE ARRANGED AND CONDUCTED BY

ROSS & ROSS

AUCTIONEERS · LIQUIDATORS

WOODDALE BLDG. Phone WHittier 8586 MINNEAPOLIS 16, MINN.

WATCH YOUR NEXT EDITION OF EQUIPMENT ADVERTISER, YOUR LOCAL NEWSPAPER, RADIO AND T.V. STATIONS FOR . . . MORE COMPLETE DETAILS

EVERYTHING POSITIVELY SELLS . . .
TO HIGHEST BIDDERS

No Price Reservations, No Reserves, No Minimums By Owners

SEND $1.00 (Mailing Cost) FOR DESCRIPTIVE CATALOG

Used-Immediate Delivery

Special!

Lorain-TL15J Crawler-Shovel

- **A C Model W** & ⅝ yd Loader
- **Allis Chalmers AD 40** Motor Grader
- **Barber Greene 82A & 543** Bucket Loaders
- **Case VAI** & ⅝ yd Lull Loader
- **Cat. D-2, D-4, D-6, & D-7,** Tractors & Bulldozer
- **Cat. D-4** & 1 yd. hyd. Traxcavator
- **Cletrac DG** Tractor & Bulldozer
- **Cletrac BG** Tractor & Bulldozer
- **Ferguson T20** & Back Hoe
- **Hough HA, HM** Payloaders
- **Int. I-4, I-6, ID-6** & Hough Loaders
- **Int. TD-9** & 1-yd. hyd. BE-Dozer Shovel
- **Int. TD-9** & 1 yd. hyd. Hough Loader
- **Int. TD-6, TD-9, T-14, TD-14** Tractors & Bulldozers
- **Int. TD-14A, TD-18, TD-18A, TD-24** Tractors & Bulldozers
- **Lorain 75A, 80** Crawler-Shovel-Crane & Dragline
- **Oliver 88** & Ware Hyd. Trencher

EHRBAR SINCE 1903

WESTBURY, L. I.
Jericho Tpk.
Westbury 7-5000

POUGHKEEPSIE, N. Y.
South Rd. — Route 9
POughkeepsie 1-0022

BROOKLYN, N. Y.
29 Meserole Ave.
EVergreen 3-5000

UNION, N. J.
U. S. 22
Unionville 2-7400

PHILADELPHIA, PA.
11500 Roosevelt Blvd.
ORchard 3-0800

PILING

SURPLUS NEW and USED **For Sale or Rent**

STEEL SHEET PILING

150—Pcs. M-116 in 60' —Chicago
55—Pcs. I-27 in 32 to 34' —Missouri
190—Pcs. M-116 in 25 to 35' —Nebraska
100—Pcs. I-27 in 27 to 35' —Kansas City
125—Pcs. M-116 in 27 to 30' —Kansas
83—Pcs. M-112 in 25 to 65' —North Dakota
80—Pcs. M-116 in 25 to 30' —Iowa
80—Pcs. I-27 in 25 to 29' —Nebraska
900—Pcs. I-23 in 15' —Illinois
170—Pcs. I-23 in 13 to 16' —Nebraska

Available for Prompt Shipment
Other Lots at Various Locations

CONTRACTORS MACHINERY CO.
Phone VAlentine 4740
2637 SOUTHWEST BLVD
KANSAS CITY 8 MO

FOR SALE OR RENT

STEEL SHEET PILING

BRAND NEW

1336 pcs. 56 ft.-Carnegie MP-101
100 welded Y's 56 ft.

About mill price in carload lots.

IMMEDIATE SHIPMENT FROM CHICAGO

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., Chestnut 4474, St. Louis, Mo.

WANT BUY

ALL SECTIONS
STEEL SHEET PILING
PILE HAMMERS & EXTRACTORS

DARIEN CORP.
60 E. 42nd St. New York 17, New York

We do a Nation-Wide business in

STEEL SHEET PILING

IMMEDIATE SHIPMENT

1900 pcs. 72-16 ft. Carn. MP-101-West Coast
164 pcs. 60-50 ft. M-116 & M-115-Illinois
95 pcs. 60-30 ft. Beth. DP-2-New York
139 pcs. 30 ft. Inland I-23-Kentucky
112 pcs. 40 ft. Larsen II-Alabama

Other lengths & sections used & new at other locations in United States for rent.
We have Nation-wide reputation for effecting QUICKEST SHIPMENTS

All sizes Vulcan & McKiernan Pile Hammers & Extractors for rent—Shop Rebuilt
Regardless of location of job. Wire, Write, or Phone

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., Chestnut 4474 St. Louis, Mo.

STEEL SHEET PILING

900 TONS ALGOMA B6—30 FT. CANADA
300 PCS. U.S. MP-101—Y-PCS. 56 FT. IN ILL.
498 PCS. U.S. MP-101—56 FT. IN ILL.
244 PCS. BETH. DP-2—25 FT. IN N. Y.
382 PCS. BETH. AP-3—20/25 FT. IN PA.
300 PCS. BETH. DP-2—60 FT. IN OHIO & N.Y.
188 PCS. BETH. DP-2—40 FT. IN N. J.
350 PCS. BETH. DP-2—50 FT. IN N. Y.
400 PCS. BETH. ZP-32—58 FT. IN FLA.
480 PCS. BETH. AP-3—60 FT. IN N. Y.
68 PCS. BETH. AP-4—60 FT. IN N. Y.

FOUNDATION EQUIPMENT

E-4 McK. TERRY EXTRACTOR
15 McK. T. HAMMERS 11B3—10B3—88—65 & No. 5
Vulcan No. 0-1 & 2 Pile Hammers
9½ x 10 LAMBERT 3 DRUM STEAM HOIST

R. C. STANHOPE, INC.
60 E. 42nd St. N. Y. 17, N. Y.

FOR SALE

DIESEL ELECTRIC LOCOMOTIVES

STANDARD GAUGE

1—25 ton—1947—150 HP
1—44 ton—1943—380 HP
1—70 ton—1948—600 HP
2—120 ton—1947—1000 HP

EXCELLENT CONDITION

Frank M. Judge & Co., Inc.
7010 Empire State Bldg. N. Y.

SALE or RENT

3—Northwest ¾ yd. #25 Pull shovels or cranes (1952 Murphy G.M. Diesels)
1—Northwest 1¼ yd. 104—52" Pull shovel Gas
1—Lorain 40 ¾ yd. Pull shovel or crane Gas
1—H. M. Hough Payloader 1½ yd. 1952
1—D-6 Caterpillar Dozer
1—Pippin—Ford Pull shovel
4—Dump Trucks and Pick-up
2—Ingersoll-Rand Compressors 160 and 310
20—Diaphragm pumps
1—LaPlant—Choat 5 yd. Hydraulic scraper

UNITED FOUNDATION CORPORATION
680 Lexington Rd. Union, N. J.
Phone: Unionville 2-4257

TRENCHERS

BUCKEYE MODEL C10-C15-160-410-406-11-12-51-32
CLEVELAND 95-110-140-320
PARSONS MODEL 25-310-250-221
BARBER GREEN MODEL 44C, 5'6", 7'6", 8'6"
P & H MODEL 1030-1545

AIR COMPRESSOR RENTAL CO.
19615 Nottingham Road Cleveland, Ohio
Kenmore 1-8000

Air Compressor Rental Co........... 112
Albert Pipe Supply Co., Inc.......... 113
Ambursen Dam Co., Inc............ 114
American Air Compressor Corp....... 110
Atlantic Tug & Equipment Co., Inc.. 114
Boyer, R. H...................... 110
Buff 115
Carlyle Rubber Co., Inc............ 113
Consolidated Engineering Co 114
Contractors Machinery Co.......... 110
Contractors Trading & Equipment Corp. 109
Costello, Patrick J................ 109
Darien Corp. 112
Deatherage & Son, George E........ 109
Drachman Steel Co., Inc., Hy........ 110
Ehrbar 112
Forsythe Equipment Co., Inc......... 110
Frank, M. K...................... 114
Frazier-Davis Construction Co....113, 114
Gillis & Co....................... 114
Glazer-Steel Corp. 109
Gordon Construction Co............. 114
Greenpoint Iron & Pipe Co.......... 113
Greensburg Machine Co............. 110
Haskell Jr. P. H.................. 109
Hercules Hose & Rubber Co......... 113
Hickerson, Roy D.................. 115
Howard, Needles, Tammen & Bergendoff 108
Hunkin-Conken Constr. Co........... 114
Judge & Co., Inc., Frank M.......... 112
McDonald, J. C.................... 113
Midwest Steel Corp................. 114
Mississippi Valley Equipment Co.110, 112
Morrison Railway Supply Co......... 114
National Blue Print Co............. 115
Park, A. M....................... 109
Rogers & Wright Inc............... 113
Ross & Ross, Auctioneers........... 111
Schoonmaker Co., Inc., A. G......... 110
Southern Gateway Co.............. 108
Stanhope Inc., R. C................ 112
State Personnel Board............. 108
Substructures Corp. 114
Tagco, Inc. 113
Tennessee Valley Authority.......... 108
Testa Bros., Inc................... 114
United Foundation Corp............. 112
Warren-Knight Co. 115
Weiss Co., B. M................... 110
White Co., David.................. 115
Williams Construction Co........... 110
Wilson Engineering Co.............. 109

CARLYLE
INDUSTRIAL RUBBER PRODUCTS
FOR EVERY PURPOSE

IMMEDIATE DELIVERY OF CONVEYOR, ELEVATOR AND TRANSMISSION BELTING — FIRE, WATER, SUCTION, AIR, STEAM AND WELDING HOSE

WHY WAIT

We have 8 to 48

RUBBER CONVEYOR BELTING

TOUGH COVERS—Heavy duty, specially compounded abrasive resistant rubber covers having high tensile strength. Thoroughly capable of withstanding the abrasive action of bulk materials. Properly vulcanized to the carcass to assure utmost performance, economically.

STRONG CARCASS — Constructed of finest quality 28 and 32 ounce tough cotton duck, properly treated and impregnated to avoid mildew from moisture and atmospheric conditions. Each ply thoroughly embedded in rubber to prevent ply separation.

FLEXIBILITY — Careful attention has been given in the construction of all belts to have the proper flexibility assuring the following desirable features; troughs easily, runs true on all idlers, gouge resistant, excellent for long and short hauls and slope installations.

Avoid delays in your production schedules!

We carry in stock for your immediate requirements, Conveyor Belting in widths from 8 inches to 48 inches.

Width	Ply	Thickness Top Cover	Thickness Bottom Cover	Type of Duck Carcass
8"	4	1/16"	1/32"	28 Oz.
10"	4	1/16"	1/32"	28 Oz.
12"	4	1/16"	1/32"	28 Oz.
14"	4	1/16"	1/32"	28 Oz.
16"	4	1/8"	1/32"	28 Oz.
18"	4	1/8"	1/32"	28 Oz.
20"	4	1/8"	1/32"	28 Oz.
20"	5	1/8"	1/32"	28 Oz.
24"	4	1/8"	1/32"	28 Oz.
24"	5	1/8"	1/32"	28 Oz.
26"	5	1/8"	1/32"	28 Oz.
30"	4	1/8"	1/16"	32 Oz.
30"	5	1/8"	1/16"	32 Oz.
30"	6	1/8"	1/16"	32 Oz.
36"	6	1/8"	1/16"	32 Oz.
42"	5	1/8"	1/16"	32 Oz.
48"	5	1/8"	1/16"	32 Oz.
48"	8	1/8"	1/16"	32 Oz.

INQUIRE FOR SIZES NOT LISTED
ELEVATOR TRANSMISSION & V-BELTING ALSO IN STOCK

All our belting made by the leading belting manufacturers.

Write for Free Booklet on Installation, Care & Maintenance of Conveyor Belting.

SEND US YOUR INQUIRIES FOR OTHER RUBBER PRODUCTS.

CARLYLE RUBBER CO., Inc.
62-66 Park Place, New York 7, N. Y.
Phone: DIgby 9-3810

Fire Hose - Double Jacket

2½" 35¢ — 3" 45¢ ft.
Couplings Extra
Write for complete details

HERCULES HOSE & RUBBER CO.
2315 N. 15th St., Phila. Pa.

FOR SALE

48B BUCYRUS ERIE SHOVEL 2½ YDS.

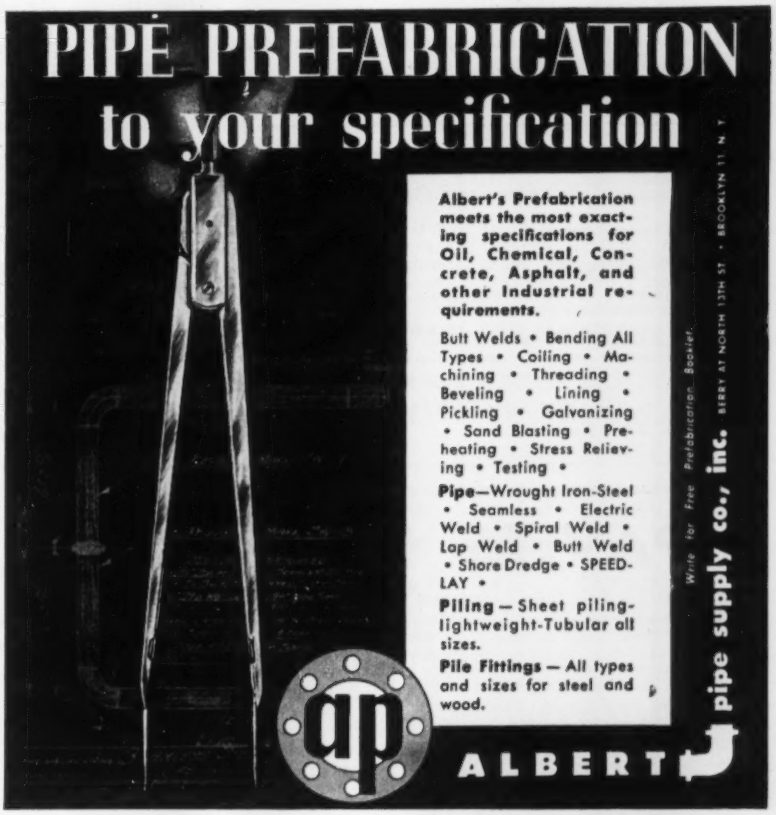
Completely Overhauled

$24,000.

J. C. McDONALD
Box 145, Murdock 6-6600, Baltimore 20, Md.

PIPE

SURPLUS NEW and USED FOR SALE



PIPE PREFABRICATION to your specification

Albert's Prefabrication meets the most exacting specifications for Oil, Chemical, Concrete, Asphalt, and other Industrial requirements.

Butt Welds • Bending All Types • Coiling • Machining • Threading • Beveling • Lining • Pickling • Galvanizing • Sand Blasting • Preheating • Stress Relieving • Testing •

Pipe—Wrought Iron-Steel • Seamless • Electric Weld • Spiral Weld • Lap Weld • Butt Weld • Shore Dredge • SPEEDLAY •

Piling — Sheet piling-lightweight-Tubular all sizes.

Pile Fittings — All types and sizes for steel and wood.

ALBERT pipe supply co., inc. BERRY AT NORTH 13TH ST. • BROOKLYN 11, N. Y.

Write for Free Prefabrication Booklet

When you need

PIPE . . . fast

use this section, as many contractors do, as a pipe buying directory. It can save you time when you want to know, quickly, where to buy good new or used pipe.

PIPE

VALVES and FITTINGS
All Sizes in Stock
NEW—USED

GREENPOINT IRON & PIPE CO. INC
Bogart and Stagg Streets Brooklyn, N.Y.

CRANES

1—2 cubic yard Lima Combination Crane and Shovel with 100 foot boom plus 25 foot jib.

1—1½ cubic yard Northwest Crane.

Subject to prior sale

FRAZIER-DAVIS CONSTRUCTION CO.
1319 Macklind Avenue, St. Louis, Mo.
STerling 1950
Box 188 Grahamsville, New York
Grahamsville 2861

10" LINE PIPE

Immediate Delivery

16,750'—10-¾" OD 40.48# Youngstown Grade B Electric Weld, cleaned, straight, 40' DRL, ends beveled. Used excellent condition. Priced low for prompt shipment Labadie, Mo.

ROGERS & WRIGHT, INC.
710 Peoples Bldg. 216 W. 2nd St.
Charleston, W. Va. Tulsa, Oklahoma

FOR SALE—*Immediate Delivery*

C.I. Water Pipe and Fittings—AWWA Standard

We specialize in pipe and fittings which are hard to get, having in stock such as the following:—

2000 linear feet 30" Class B—Pit Cast—Class B in 12 ft. lengths—Re-conditioned

5 Lengths 60" B&S Pipe, Cl. D. 12' long
3—60" x 24" Solid Sleeves, Cl. D.
1—60" B&S 45 deg. Bend, Cl. D.
20" to 36" B&S 45 deg. Bends
3" to 30" Y-Branches—Type 2

Also C. I. B&S Pipe from 2" to 36". C. I. Flanged Pipe from 3" to 24". Always on hand a complete line of C. I. Fittings—all sizes and kinds.

TAGCO, INC.
111 Front St. Hempstead, L. I., N. Y.
Tel.—Hempstead 2-5535 or 2-8857

MISCELLANEOUS EQUIPMENT

4—Ingersoll-Rand Wagon Drills
2—15 cubic yard Fruehauf Semi Trailers—Dump Body
2—15 ton Fruehauf Flat Bed Semi Trailers
2—Diamond T Tractors
1—D-8 Bulldozer
3—Euclid 8 cubic yard End Dump Trucks
2—Ames Vertical 60 H.P. Boilers
1—National Vertical 40 H.P. Boiler
1—Erie Horizontal 80 H.P. Boiler
All boilers are equipped with oil burners

Subject to prior sale

FRAZIER-DAVIS CONSTRUCTION COMPANY
1319 Macklind Avenue, St. Louis, Mo. STerling 1950
Box 188—Grahamsville, New York Grahamsville 2861

DRAGLINES

Available Immediately

Sale or Rent:

Manitowoc, Model 4500—6 yards
Northwest, Model 95—2½ yards
Bucyrus Erie, Model 54B—yards
Lima, Model 802—2 yards
Lima Paymaster, Model 34—¾ yard
Lorain, Model L-41—¾ yard
all with Diesel Engines

Dragline buckets furnished on the above

3—**LeRoi Air Compressors**, Model 600 C.F.M.; steel wheels; Murphy diesel engine.
5—**Cletrac Tractors**; equipped with Towers, Trigger Hoist; Drills and Swamp pads.
2—D8 Tractor Dozers
1—LeTourneau—12 Yard Pan
2—D4—Hydraulic Dozers
4 Sets Athey Tracks
Cat. 12 Grader with Welder; Lite Plant
Trucks and Jeeps

Priced to sell—Call or Write:

TESTA BROS., INC.
Clewiston *Tel.—2-5121 or 2-5101* Florida
OR
Room 925 Citizens Bldg., Cleveland 14, Ohio
Tower 1-0558

FOR SALE

Located in our Yard, Cleveland, Ohio, in excellent condition subject to prior sale:

6—25 YD. R. U. LeTOURNEAU SCRAPERS, overhauled, tires good, Serials S9062, S9519, S9643, S9656, S8991, S8992, $4500.00 each.

1—MODEL 9 BV EUCLID LOADER, Serial 9 BV-121, powered with GMC Diesel 671 RA 63-6A-9046, completely overhauled and good as new. Has new belt never used. Price $18,000.00.

1—6 TON BROOKVILLE DIESEL LOCOMOTIVE 36" gauge, International UD9 Engine 5 speed transmission, 20" rolled steel wheels, mechanical brakes, gas starting engine, electric lights, enclosed cab, used 3 months, price $1500.00.

Call Mr. Fuller Grund, Broadway 1-7860

THE HUNKIN-CONKEY CONSTRUCTION COMPANY
3459 E. 52nd Place Cleveland, Ohio

RAILS-TIES
TRACK ACCESSORIES
NEW and RELAYING

FOR IMMEDIATE DELIVERY

RAILS

NEW—RELAY

300 TONS	80#ASCE	NEW
500 TONS	90#ASCE	NEW
1600 TONS	90#ASCE	RELAY
400 TONS	90#ARA-B	RELAY
700 TONS	100#ARA-A	RELAY
900 TONS	110#AREA	RELAY

80# & 90# RAILS 30' to 33' with Angle Bars
100# & 110# RAILS 33' to 39' with Angle Bars

New Light Rails and Turnouts Available for Prompt Delivery

MORRISON
RAILWAY SUPPLY CORP.
814 Rand Bldg. Buffalo 3, N. Y.
Mohawk 5820

PAVERS

RANSOME 34E Dual Drum Serial 50809. Cummins Diesel. 200 Gal. Auxiliary Water Tank. Used on one short job since rebuilding. Excellent Operating Condition.

KOEHRING 34E Dual Drum. Serial 21225. GM 471 Diesel. 600 Gal. Water Tank. Template Puller. Outriggers. Completely Rebuilt.

SMITH 27E Model H-34. Serial 48897. Waukesha Gas Engine. Water Tank. Skip. Batch Meter.

CEDARAPIDS Portable Quarry Plant. Complete with Screens. Conveyors. and "Cat" Power.

Also Available: Wayne 66 with backhoe (Demonstrator); Cat D-4 with Angle Blade; many others.

ATLANTIC TUG AND EQUIPMENT COMPANY, INC.
1801 Erie Blvd., East Syracuse, N. Y.
72-3331

FOR SALE
UNIVERSAL TRUCK CRANE
Mounted on 10 Ton White Chassis

25'—37'—52' Boom. Spare Waukesha Crane engine included. Good operating condition.

We offer subject to prior sale $7,500.00 cash.

Consolidated Engineering Company
P. O. Box 409 Wheeling, West Va.
Telephone 638 Wheeling

FOR SALE

Complete 1-yd. Sauerman slackline cableway Sand and Gravel Excavating Outfit Includes main hoist, 40 ft. mast, tail tower, 1 yard bucket, large hopper. Also reclaiming hoist, mast and scraper. All blocks & guy cables.

THE GORDON CONSTRUCTION COMPANY
1900 - 31st Street Denver, Colorado

NEW—RAILS—Relayers

All sizes and weights. Also frogs, switches, spikes, bolts, tie plates, contractors' and mine equipment carried in stock.

M. K. FRANK
480 Lexington Ave. Park Bldg.
New York, N. Y. Pittsburgh, Pa.
Reno, Nevada Carnegie, Pa.

RAILROAD Cross and Switch TIES

Promptly from adequate stocks
NEW and USED *(as available)*

GILLIS & COMPANY
29 East Madison St. Chicago 2

LOW COST INSTALLATION AND OPERATION
CABLEWAYS
IMMEDIATE SHIPMENT
ELECTRIC, STEAM OR DIESEL
CAPACITY 3 TO 20 TONS
SELL, RENT OR BUY
AMBURSEN DAM CO. INC.
295 MADISON AVE NEW YORK
FOR
DAMS
BRIDGES
BREAKWATERS
FILTRATION AND
SEWERAGE PLANTS
FOR
SPEED
ECONOMY
EFFICIENCY
FLOOD SAFETY
LABOR REDUCTION

BUCKEYE #10 TRENCHER

Serial #4324, digs 24" x 5½ ft. deep, special long conveyor, excellent condition, located in New York City $3750.00

SUBSTRUCTURES CORP.
2081 Richmond Terr.
Port Richmond, Staten Is. 2, N. Y.

RAILS
NEW — RELAYING — TRACK ACCESSORIES
MIDWEST STEEL CORP.
502 DRYDEN STREET
CHARLESTON, W. VA
IMMEDIATE DELIVERY

PROFESSIONAL SERVICES

NEW ENGLAND

Jackson & Moreland
Engineers and Consultants
Utilities and Industrials
Design and Supervision of Construction
Reports—Examinations—Appraisals
Machine Design—Technical Publications
Boston New York

Metcalf & Eddy
ENGINERRS
Investigations Reports Design
Supervision of Construction
and Operation
Management Valuation Laboratory
1300 Statler Building, Boston 16

MIDDLE ATLANTIC

Edwards, Kelcey & Beck
Reports, Design Supervision, Expressways, Port & Harbor Works, Terminals, Tunnels, Bridges, Water Supply, Industrial Plants, Traffic and Management Studies.
3 William Street, Newark 2, N. J.
250 Park Avenue, New York 17, N. Y.

Porter, Urquhart & Beavin
O. J. Porter & Co.
Consulting Engineers
Airports-Highways-Dams-Structures
Foundations-Stabilization-Pavements
415 Frelinghuysen Ave., Newark 5, N.J.
76 Ninth Ave., New York 11, N. Y.
3568 West Third St., Los Angeles 5, Calif.
516 Ninth St., Sacramento 14, Calif.

Ammann & Whitney
Consulting Engineers
Design — Construction Supervision
Bridges, Buildings, Industrial Plants, Special Structures, Foundations, Airport Facilities, Expressways.
76 Ninth Avenue, New York 11, N. Y.
724 E Mason Street, Milwaukee 2, Wis.

Preload Engineers Inc.
Founded - 1934
Consultants in Prestressed Design

Designers of more than 800 prestressed concrete bridges, buildings, tanks and high pressure pipe lines erected in North America since 1934.

Curzon Dobell *E. H. Thwaits*
Eric Molke *Cedric Stainer*

955 North Monroe Street, Arlington, Va.

Severud-Elstad-Krueger
Consulting Engineers
Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Avenue
New York 17, N. Y.

Albright & Friel, Inc.
Consulting Engineers
Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators, Power Plants, Industrial Buildings, City Planning, Reports, Valuations, Laboratory.
121 So. Broad St., Philadelphia 7, Pa.

Frederick H. Dechant
Consulting Engineer
Chairman of the Board.
Frederic R. Harris Inc.
Water Works, Industrial Wastes, Sewerage, Recovery Processes, Hydraulic Works, Gas Plants
Phila.: Fidelity Phila. Trust Bldg.
New York: 27 William St

SOUTH

Duval Engineering & Contracting Co.
General Contractors
FOUNDATION BORINGS
For Engineers and Architects.
Jacksonville, Florida

Rader Engineering Co.
Water Works, Sewers, Refuse Disposal, Ports, Harbors, Flood Control, Bridges, Tunnels, Highways, Airports, Traffic, Foundations, Buildings, Reports, Investigations, Consultations.
111 N.E. 2nd Ave., Miami 32, Florida

MIDDLE WEST

Consoer, Townsend & Associates
Water Supply, Sewerage, Flood Control & Drainage, Bridges, Express Highways, Paving, Power Plants, Appraisals, Reports, Traffic Studies, Airports, Gas & Electric Transmission Lines.
351 East Ohio St., Chicago 11, Illinois

Harza Engineering Co.
Consulting Engineers
L. F. Harza
E. Montford Fucik Calvin V. Davis
Hydroelectric Plants and Dams
Transmission Lines
Flood Control, Irrigation
River Basin Development
400 West Madison Street Chicago 6

MARINE DIVING

Walter Detrick
Marine Diver
Construction • Repair • Salvage
Quincy, Illinois
9006 Phones 750

INSPECTION & TEST

Johnson Soils Engineering Laboratory
Engineering design and construction tests run from MOBILE LABORATORY UNITS at construction site. Field load bearing tests.
193 West Shore Ave., Bogota, N. J.
Bogota-Hubbard 7-4408

When you need a SPECIALIST in a hurry . . .
Engineering News-Record's Professional Service Section offers the quickest, most direct method of contacting consultants who may be available NOW.

SEARCHLIGHT SECTION

SURVEYING INSTRUMENTS

USED • REBUILT • SALE • RENT • REPAIRING

FROM STOCK
Brand New & Rebuilt
TRANSITS & LEVELS
Fully equipped modern shop—all makes and models repaired — all work guaranteed — instruments rented

Midwest Representative: W. & L. E. Gurley
NATIONAL BLUE PRINT CO.
Established 1914.
210 S. Canal St. Chicago (6), Ill.

ALL MAKES
RE-BUILT
REPAIR BUFF
RENT
REAL EXPERTS
69 Day St., New York

Watch—
the *Searchlight Section*
for
Equipment Opportunities

TRANSITS and LEVELS

NEW OR REBUILT
SALE OR RENT
HEADQUARTERS FOR REPAIRS — any make

We will buy or trade in old Transits, Levels, Alidades, etc. Send instruments for valuation.
Write for Catalog NR-401 of new engineering Instruments, Engineering Field Equipment and Drafting Room supplies and NRL-401 for list of *rebuilt* instruments.

WARREN-KNIGHT CO.
Mfrs. of Transits & Levels
136 N. 12th St. · Philadelphia, 7 Pa.

SPECIALIZED REBUILDING
of surveying and engineering instruments.
All makes and models expertly repaired in modern shop. All work guaranteed.
USED REBUILT INSTRUMENTS
for sale or rent
ROY D. HICKERSON
8 N. EDMONDSON AVE. INDIANAPOLIS 19, IND.

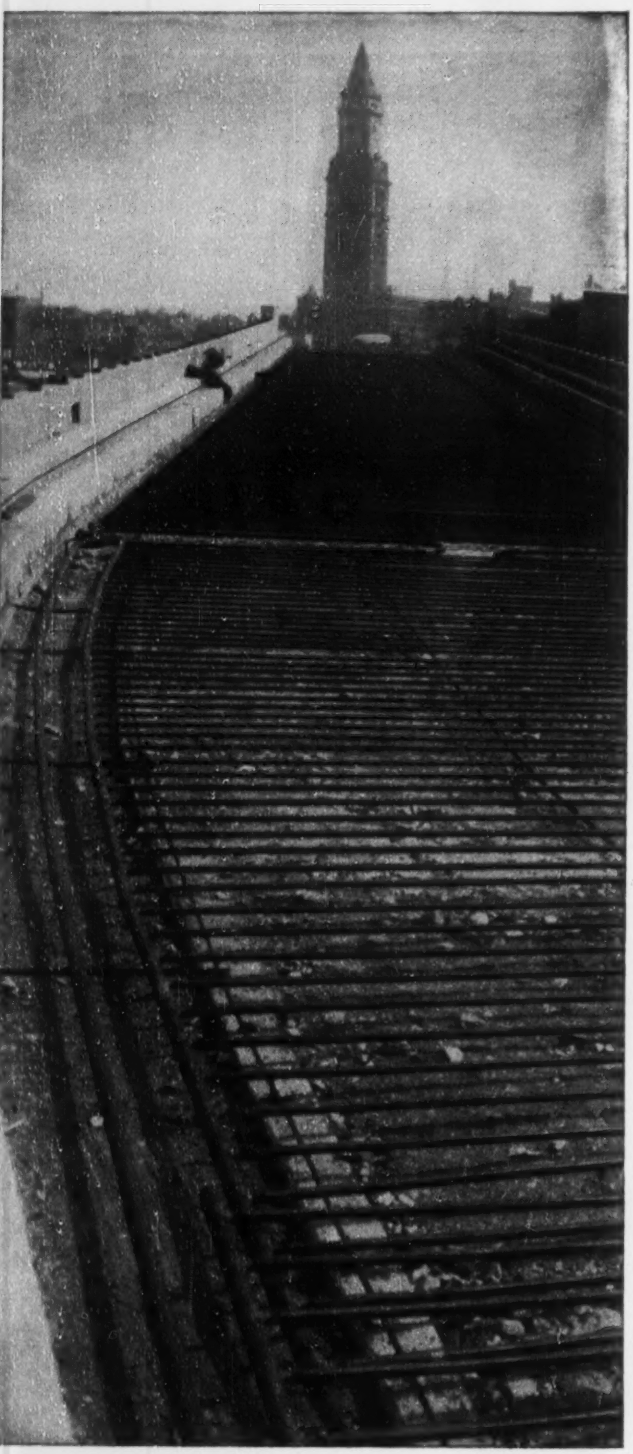
INSTRUMENT REPAIR BY CRAFTSMEN

Our craftsmen have a completely equipped department fully able to accommodate the repair of all makes of transits, levels and measuring tape. Work includes thorough overhaul, cleaning, oiling and adjustment.

Precision work guaranteed.

DAVID WHITE COMPANY
317 W. Court St., Milwaukee 12, Wis.

INSTRUMENTS FOR RENT
We rent transits and levels on a monthly or yearly basis. Reasonable rates. All instruments are fully guaranteed in first class working order.
DAVID WHITE COMPANY
317 W. Court St. • Milwaukee 12, Wis.



World's Largest Snow Melting System Uses Wrought Iron Pipe

More than 200 tons of corrosion-resistant wrought iron pipe forms snow melting grids on sixteen ramps serving Boston's 200-million dollar Aerial Highway

When completed, the access ramps leading to Boston's Aerial Highway will be the modern answer to the winter motorists' dream.

Heated by coils of wrought iron pipe, these pavement ramps will provide a dry road surface in blustery cold weather months to protect the motorists from dangerous skidding hazards and the driving threat of winter traffic jams.

More than 200 tons of wrought iron pipe, selected because of its ability to resist corrosion and vibration, and its ease of installation, are arranged in series and buried in the concrete. To operate, steam supplied by Boston Edison Company, is fed to heat exchangers. Water mixed with Ethylene-Glycol anti-freeze, is circulated through the heat exchangers and wrought iron pipe network. The heated pavement melts snow as it falls, prevents ice from forming.

This modern expressway, designed by Architects-Engineers Fay, Spofford & Thorndike and the Commonwealth of Massachusetts Bridge Department, again reflects Boston's leadership in adapting snow melting systems to winter weather problems. The Merrill Company were Heating Contractors, and the V. Barletta Company were General Contractors. The Jarvis Engineering Company fabricated all pipe coils for the snow melting system.

Wrought iron pipe is establishing durability records in snow melting systems under sidewalks, store entrances, factory platforms, garages, hangers, and other surfaces where snow and ice create safety and production hazards. For complete details, write for our bulletin, WROUGHT IRON PIPE FOR SNOW MELTING SYSTEMS.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Dept.: New York, N.Y.

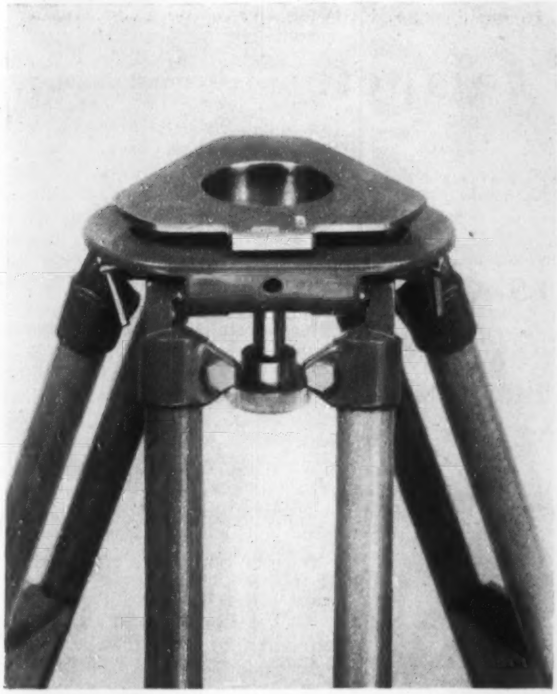
BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

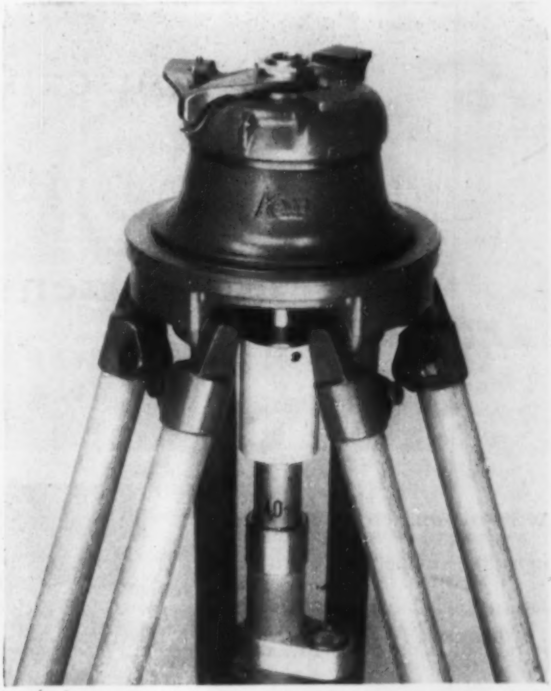
WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS



GIMBAL-MOUNTED tilting plate has recessed bubbles for establishing level working plane for optical plummet instruments.



CENTERING ROD extending down from head centers instrument over station point, rough levels, gives height of instrument.

A new pair of tripods use their heads

Transitmen using optical plummet instruments on old style tripod heads undoubtedly will shout a few "huzzahs" when they learn of a new Swiss development—they will, that is, if they have any strength left.

Basically, the problem and solution amount to this: Centering and leveling of an optical plummet instrument requires a flat *level* base on which to maneuver the instrument over the station point. If this base is not level or near to it, leveling the instrument throws it off the point and centering throws the instrument out of level and the process must be repeated, ad infinitum. Before the infinite number of shiftings and levelings has been run through, the instrument man may give up in disgust or accept his closest approximation of accuracy.

The new tripod heads simply establish a level plane for manipulation of the instrument regardless of the tripod position—within reasonable limits of course. Full attention can then be given to the precise leveling and centering of the instrument.

The first and simplest of these new heads is that mounted on the Kern Model 183 tripod. Identified as the tilting plate tripod, this piece of equipment consists of a plate mounted on gimbals superimposed on the main tripod base. The upper tilting plate is leveled with a pair of tiny cross-levels countersunk into its surface. The plate is locked at level by three screws equally spaced around the triangular plate.

Once this plate is leveled the transitman is assured of a sufficiently horizontal surface so that the small amount of fine leveling with the instrument bubbles that may be necessary will not throw the instrument off the station point.

With this tilting plate tripod, the only difficulty is to set it up close enough over the point so that the lateral play is sufficient to center the instrument. This usually is overcome with a bit of experience.

The second Kern development, the Centering Tripod, represents a refinement of the tilting plate type. It does three things for the surveyor simply and simultaneously:

First, it centers the instrument over the station point with an accuracy of 0.02 to 0.04 in. This is done through the use of a telescoping anodized aluminum rod extending from the underside of the tripod head. All that is required is to place the lower, pointed end of the centering rod on the station point.

Second, it roughly levels the top of the tripod head within 2 to 3 min of arc. Attached to the centering rod is a bullseye level; at the same time that the rod is centered over the station point it may be plumbed with this level.

Third, the centering rod is calibrated in twentieths of a foot to indicate height of instrument (H.I.) within a range of from 3.8 to 6.0 ft. This is more easily understood when it is remembered that the centering rod is of the telescoping type and therefore automatically adjusts in length for all setups.

Topside of the tripod head the user finds the same brand of manufacturing ingenuity used. Instead of the conventional flat plate, the centering tripod uses a ball and socket joint to support the instrument coupling. This

(*Continued on page 119*)

You can't compete if your equipment is obsolete!

With construction activity becoming more competitive, even in the face of high labor costs, it is more important than ever before to take a closer look at your operating costs . . . your dirt moving methods . . . your tools and equipment.

Obsolete methods and equipment take a heavy toll by slowing down output, increasing manhours and increasing repairs and maintenance. Efficient material handling equipment can make the difference between profit and loss on most any job . . . help insure that time and production schedules are met without resorting to expensive overtime and wasteful emergency practices.

If you are not using "PAYLOADER" Tractor-Shovels at present, it will pay you to investigate these fast, flexible, rubber-tired loaders that have proven so profitable for so many material producers and contractors, both large and small.

If you are already "PAYLOADER"-equipped, you'll be pleasantly surprised at the superior performance of the late model "PAYLOADERS". Although "PAYLOADERS" are built to give thousands of hours of dependable service, constant research and engineering improvements keep them out in front in design, construction and performance.

Now is the time to trade in obsolete equipment — to modernize your methods to meet present day conditions — to assure profitable operation in spite of closer competition. Your nearby "PAYLOADER" Distributor will gladly demonstrate any of the new models. The Frank G. Hough Co., 772 Sunnyside Ave., Libertyville, Ill.

PAYLOADER®

THE FRANK G. HOUGH CO. • Since 1920

joint is composed of two spherical surfaces of different radii but with the same center of curvature. The upper spherical surface is of the shorter radius and carries the movable support plate and a centering sleeve for the instrument. The lower spherical surface supports a tightening sleeve and a bowl-shaped clamping plate connected to the movable support plate through a rigid shank. The continuation of this shank is the telescopic centering rod.

In simple terms, here's how the tripod works. It's as if the instrument were mounted on one leg—in this case the centering rod. Leveling the bullseye attached to the leg automatically roughly levels the instrument. But since precise leveling must be done within the instrument, it becomes necessary to incorporate a universal joint between the leg and instrument, and Kern uses the two spherical surfaces to accomplish the multidirectional adjustments required. The three legs of the conventional tripod are added for sturdiness and rigidity as well as to remove all the weight from the calibrated centering rod.

But for all of this, the centering rod tripod still maintains the ruggedness of simpler types. The centering rod is of rigid, corrosion resistant anodized aluminum, built to take hard knocks. It locks automatically when telescoped in carrying position and in that position is protected by the tripod legs. A cup shaped metal cap protects the tripod head when not in use and also serves as an anchor for the shoulder strap. The other end of the shoulder strap attaches to the shoes of the tripod.

Both the tilting plate and centering tripod run slightly higher in cost than standard models. The tilting plate with telescopic legs is priced at $98; with fixed legs the price is $83. The centering tripod costs $148.

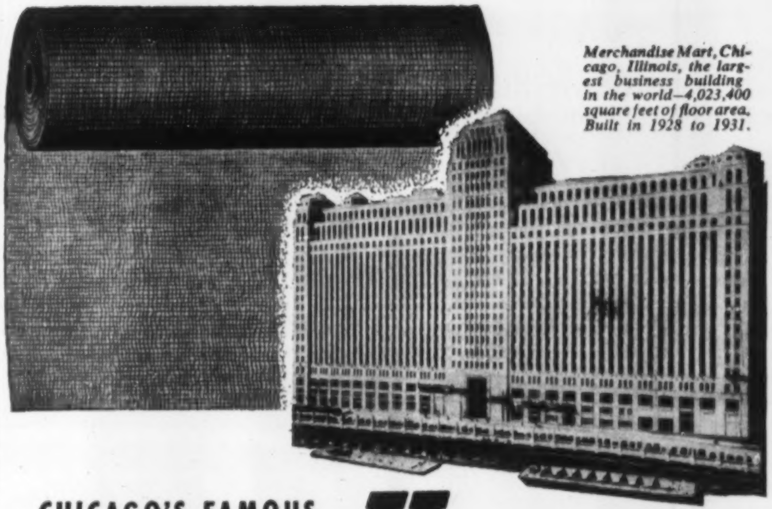
These prices however should be considered in the light of time saved together with the greater accuracy encouraged with the development of easy manipulation for the instrument man.

The U. S. distributor for Kern instruments is the Paul Reinhart Co., Inc., 66 Beaver St., New York 4. N. Y.

New diesel weighs only 19 lb per hp

A new valveless diesel power package developing 76 bhp at 2,500 rpm tips the scales at only 1,450 lb. The engine has been designed for use in

(*Continued on page 120*)



Merchandise Mart, Chicago, Illinois, the largest business building in the world—4,023,400 square feet of floor area. Built in 1928 to 1931.

CHICAGO'S FAMOUS MERCHANDISE MART CALLED FOR **Karnak**®

WATERPROOFING PRODUCTS

Karnak fabric is packed in sturdy, corrugated cartons for protected shipping and storage. They keep the fabric in perfect condition until used . . . cut fabric loss.

Twenty-five years ago, the problem of protecting the foundation of the "Mart" from hydrostatic head was answered with *Karnak*. Even though the big Chicago River flows beside it, *this Karnak job holds secure.*

Why was *Karnak* chosen? Because it is the membrane system of waterproofing *that holds tight against any water condition.*

Karnak is an open mesh long-fibre cotton cloth that has been heavily impregnated with highly refined asphalt *so as to leave the mesh open*. It is layered, on the job, with alternate moppings of asphalt to *provide a tough, resilient, waterproof membrane*. The non-sticking fabric unrolls easily . . . to the very end. It "works" faster and with no waste . . . saves labor costs.

The *Karnak* Membrane System is best for roof patching, skylight flashing, window and door flashing, through-wall and cornice flashing, as well as waterproofing against a hydrostatic head in dams, swimming pools, viaducts and tunnels. Send coupon for complete information. Manufactured by Lewis Asphalt Engineering Corp., 30 Church Street, New York 7, N. Y.

SEE OUR CATALOG IN SWEETS FILE S

OTHER KARNAK PRODUCTS

Asphalt Roof Coatings and Cements
Caulking Compounds
Asphalt Emulsions
Tile Cement
Asphalt Paint
Aluminum Roof Coating
Wood Block Mastic
Joint Filler

"Gunite" . . . . . . the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

McGRAW-HILL
TECHNICAL WRITING
SERVICE

TWS offers you a single INTEGRATED publishing service prepared to undertake a project from research and planning through finished manuscript and art, typesetting, mechanical preparation, printing and binding. Whatever the situation, whatever the type of literature you need, our editorial and art consultants can help you, bringing to your most specialized job the craft and skill of publishing experts.

WRITING EDITING
ILLUSTRATING
PRINTING

TO YOUR OWN OR
GOVERNMENT SPECIFICATIONS

Whether you need an instruction book or service manual, to accompany your equipment, written to government specifications . . . . . . or product catalogues or training booklets . . . or annual reports . . . or company histories . . . our writing staff can do the job for you, our artists can create and execute the illustrations. And McGraw-Hill printing, binding, and paper resources are among the best in the country.

SAVE MONEY AND TIME
LET OUR STAFF BE
YOUR STAFF FOR
TECHNICAL and BUSINESS
PUBLICATIONS
ASK
OUR REPRESENTATIVE
TO CALL

Write • Phone

Technical Writing Service
McGraw-Hill Book Co., Inc.

330 W. 42nd St., N. Y. 36, N. Y.
LOngacre 4-3000

rock crushers, small shovels, air compressors, pumps and other construction equipment where adequate power in a compact package is desired. Complete with base, radiator, air cleaners and clutch, the unit fits into a space 54 in. long, 28 in. wide and 48 in. high.

The engine is of two-cycle design with a Roots-type blower forcing air into and exhaust gases out of the cylinder. It has four in-line cylinders with a 4.1-in. bore and 4.1-in. stroke—compression ratio is 18 to 1.

Notable design features include the elimination of valves and valving mechanisms through the use of intake and exhaust ports in the cylinder liners, a pneumatic-type governor that has no rotating parts and a lubricating oil pump built around the crankshaft. The last feature eliminates the need for gear or chain drive on this assembly.

The engine is also available in fan-to-flywheel models weighing less than 1,200 lb. Detroit Diesel Engine Div., 13400 W. Outer Dr., Detroit 28, Mich.

Lightweight safety glasses—the ounce of prevention

Weighing little more than an ounce, Visor-Tuc safety glasses offer the promise of nearly 100 per cent protection from eye injuries and strain.

Over-eyes protection is provided by the built-in visor, an extension of the frame shaped to fit snugly against the wearer's forehead. Injury from side or bottom is prevented by semi-cup lenses, so called because of the transparent flanges extending from the lenses to the cheek.

Lenses are of replaceable, shatterproof methacrylate; optically correct to

(*Continued on page 122*)

Get 4 BIG ADVANTAGES
with Servicised
White Pigmented
Concrete Curing
Compounds

1. Fast, positive coverage... no missed spots
2. Reflects heat—reduces concrete temperatures 15° F.
3. Saves material... no waste or overlap
4. Does not run on sloping surfaces—"stays put" after application

Servicised White Pigmented Curing Compound is widely used in areas where atmospheric temperatures exceed 80° F. because it produces a membrane capable of reflecting heat to reduce concrete temperatures as much as 15° F. Even application, using minimum material and application time. May be sprayed or brushed.

Write for complete details and circular on Servicised Concrete Curing Compounds.

SERVICISED PRODUCTS CORPORATION
6051 West 65th Street, Chicago, Illinois

PHOENIX BRIDGE
COMPANY
Engineers—Fabricators
Erectors

Structural Steel
BRIDGES and BUILDINGS

General Office
and Shops
PHOENIXVILLE, PA.

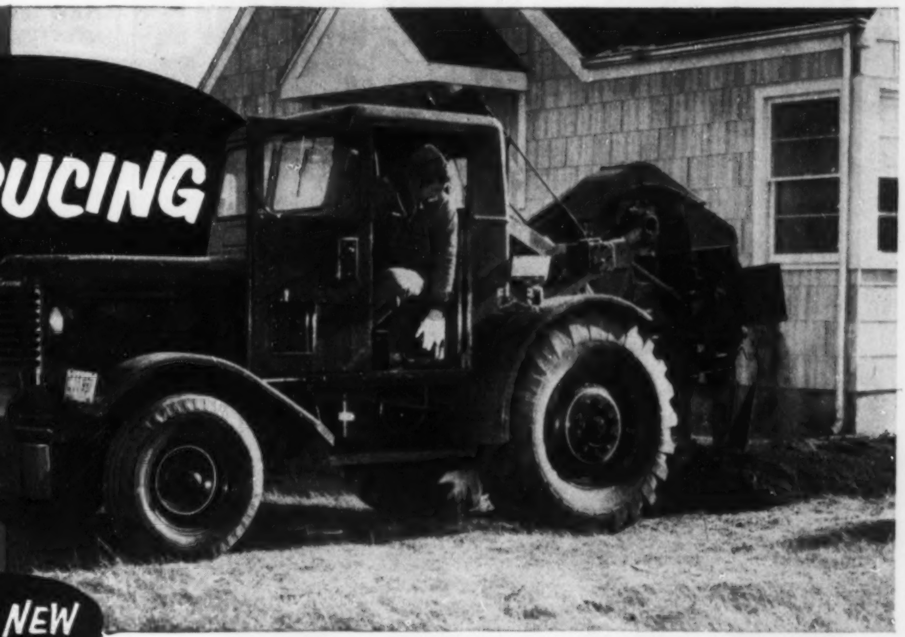
Subsidiary—Barium Steel Corporation

GUNITE
PNEUMATICALLY PLACED CONCRETE
DENSE • DURABLE • HIGH STRENGTH
for
Restoring Disintegrated Concrete
Dam, Dock and Bridge Repairs
Steel Encasement and Fireproofing
Sewer, Water Pipe and Penstock Linings
Stack and Bunker Linings
Wood Pile Casings—Pressure Grouting
Prestressed Tanks and Silos

Get in touch with us for engineering data and estimates

GUNITE CONSTRUCTION CORPORATION
420 LEXINGTON AVE., NEW YORK 17, N.Y.
MUrray Hill 3-7699

INTRODUCING



THE NEW

BARBER-GREENE MODEL 705-B

Runabout SERVICE DITCHER

trademark registered at U. S. Patent Office

Now . . . greater efficiency for lowest cost per foot of trench than ever before!

Here is the new Barber-Greene Model 705-B Runabout . . . successor to the famous B-G service ditchers that have set the standards of performance in the ditching field. Three major 705-B design features are:

1. ***New Fluid Drive.*** **Eliminates shock loads. Requires no overload devices of any kind. Gives operator new control of applied power.**
2. ***New Curved, Reversible, Insert Digging Teeth.*** **Give 3 to 5 times longer tooth life.**
3. ***New Automatic Counterbalance Valve.*** **Automatically maintains constant crowding speed when digging down grade.**

These, plus other design advancements, are in addition to proven Runabout advantages such as the exclusive Hydra-Crowd with its infinite range of crowding speeds, independent of bucket-line speeds; control from ground or cab; instant crowding, stop and reverse; fast road travel; vertical boom, ready to dig on arrival, leaves no ramp; special differential for better traction on slippery surfaces; hydraulic hoist for finger-tip operation of boom.

53-18-D

BASIC SPECIFICATIONS

- 5½", 7½" or 10½" widths
- 48" maximum depth
- 3 bucket line speeds
- Infinite range of crowding speeds from 0 to 16 ft. per min.
- 15 m.p.h. road speed
- Hydraulic backfill blade optional
- One man operation

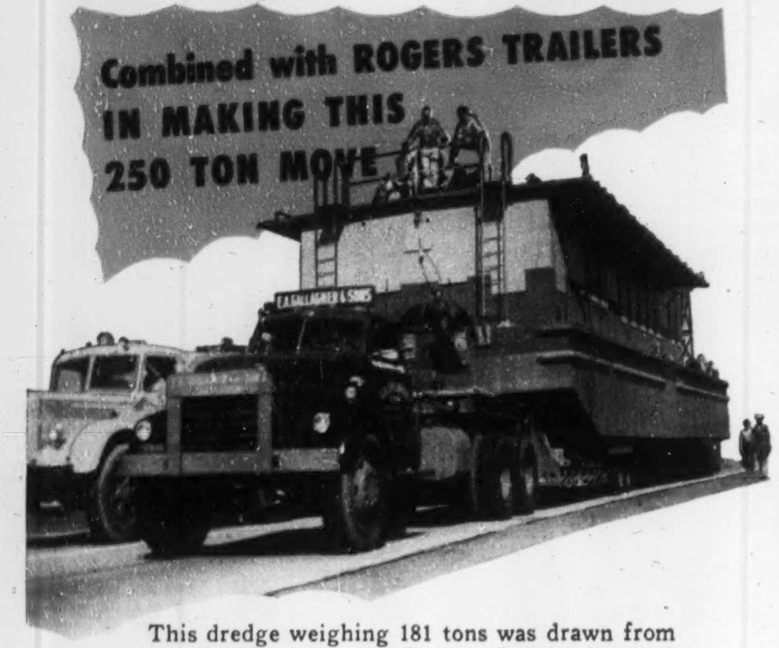
GET THE FULL STORY

See your B-G Distributor or write for new 8-page Model 705-B booklet.

Barber-Greene

Aurora, Illinois, U. S. A.

THE LIFT OF THE TIDE
and Expert "Know-How"



This dredge weighing 181 tons was drawn from a creek at Repaupo, N. J., moved 5½ miles and launched in the Delaware River. Additional equipment, a total of 250 tons, was also moved in 20 loads.

A special ramp was built at the river, the dredge "winched" into position and the lift of the 6 foot tide used to float the dredge.

Two weeks were required for this entire operation. But the actual moving was done in one day on two Rogers 50-ton low bed trailers and two Rogers 75-ton dollies.

"KNOW HOW" based on long experience was displayed by E. A. Gallagher of Philadelphia in this unusual move. Apparently, too, they KNOW that Rogers equipment can't be beat for these difficult operations.

EXPERIENCE
Builds 'em

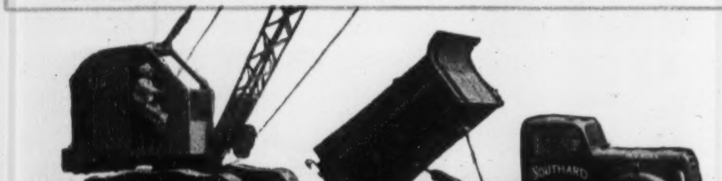
135 Orchard St.

ROGERS BROS. CORP. ALBION. PENNA.

Export Office: 50 CHURCH ST., NEW YORK 7, N.Y. U.S.A.

Cable Address: BROSITES

PERFORMANCE
Sells 'em



Attaching of loaded Rogers Tagalong trailer

prevent eyestrain or permanent injury resulting from distortion of the image. They can be obtained clear or in light, dark and medium shades of green.

The glasses are furnished in a single frame size but are adjustable to fit all workers. WATCHEMOKET OPTICAL CO., INC., 232 W. EXCHANGE ST., PROVIDENCE, R. I.

Area, volume calculator works like a slide rule

A pocket style calculator, working like a slide rule but reading like a table, may be used to obtain the areas of walls, ceilings, floors and windows or to determine the volume of a room or bay.

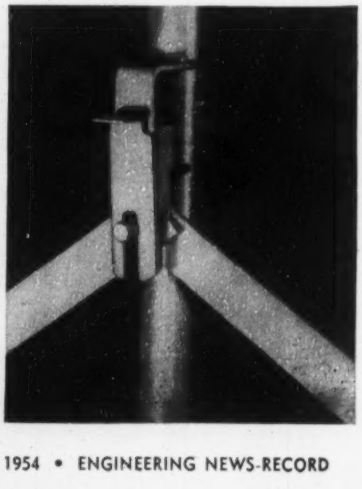
Indexed windows punched in the calculator are used to set up the problem and the answer appears automatically in a similar window. Volumes are calculated on the reverse side by setting the floor area under an arrow and reading directly on the same line the volume in cubic feet under a choice of ceiling heights.

Structural window areas—either by opening size or glass size—are computed with the aid of a sliding sleeve on the device. Five different scales are printed along the edges for additional usefulness.

The calculator measures 3¾x9 in. and is made of vinyl plastic. With leatherette case it is priced at $4.75 postpaid. PAUL S. MORTON ENGINEERING SERVICE, 609 BANGOR RD., LAWRENCE, MICH.

Gravity locking assures safer scaffold assembly

A new type of lock for fastening diagonal cross braces to frames of sectional steel scaffolds features a self-locking action designed for safer assemblies. In addition, the device,



called SlideLok, is said to cut down erection and dismantling time.

Dropping the lock into position secures one or two braces to a frame. This gravity action is said to offer a safety factor in that the lock can't be left open. This automatic action is reported relatively unimpaired by mortar, paint dirt, rust or low temperatures. THE PATENTENT SCAFFOLDING CO., 38-21 12TH ST., LONG ISLAND CITY 1, N. Y.

New rubber paving compound now in quantity production

After three years of study by the Berry Asphalt Co. in test installations in several cities, among others, Kansas City, Little Neck, N. Y. and Chicago, a new synthetic-rubber additive for bituminous paving is now in quantity production. During the test period the product bore the trade name of Berry's Rubber Baromix, but it is now called Rubarite.

Essentially, the compound is a free-flowing, unvulcanized GR-S synthetic rubber product made by co-precipitation of synthetic rubber latex with extremely small particles of barites. The end product contains 25% rubber and 75% barytes, of which more than 90% has a particle size of less than 10 microns.

The producers claim that the rubber is so minutely dispersed and separated by the barytes that it readily amalgamates with asphalt by either heat or friction or a combination of both.

Normal practice is to add enough Rubaraite to the mix to give from 3 to 5% of rubber in the final mix at a cost of about 15 or 20% over that of the bituminous paving. The new material can be used in cold mix as well as hot mix construction and in joint fillers.

The marketing company is jointly owned by Goodyear Tire & Rubber Co., National Lead Co. and Bird and Son. RUBARAITE, INC., 141 W. JACKSON BLVD., CHICAGO 4, ILL.

Capacity and dependability increased in new wellpoints

Greater capacity in a new wellpoint design is provided by eliminating internal supports for the screen assembly. This, which is a self-contained unit consisting of a fine filtering wire cloth, is held rigidly between the inner slotted brass tube and the outside perforated brass jacket. This construction affords an unobstructed flow area and resultant greater capacity.

Self-containment of the screen as-

(*Contnued on page 126*)

HOLE THRU FASTER

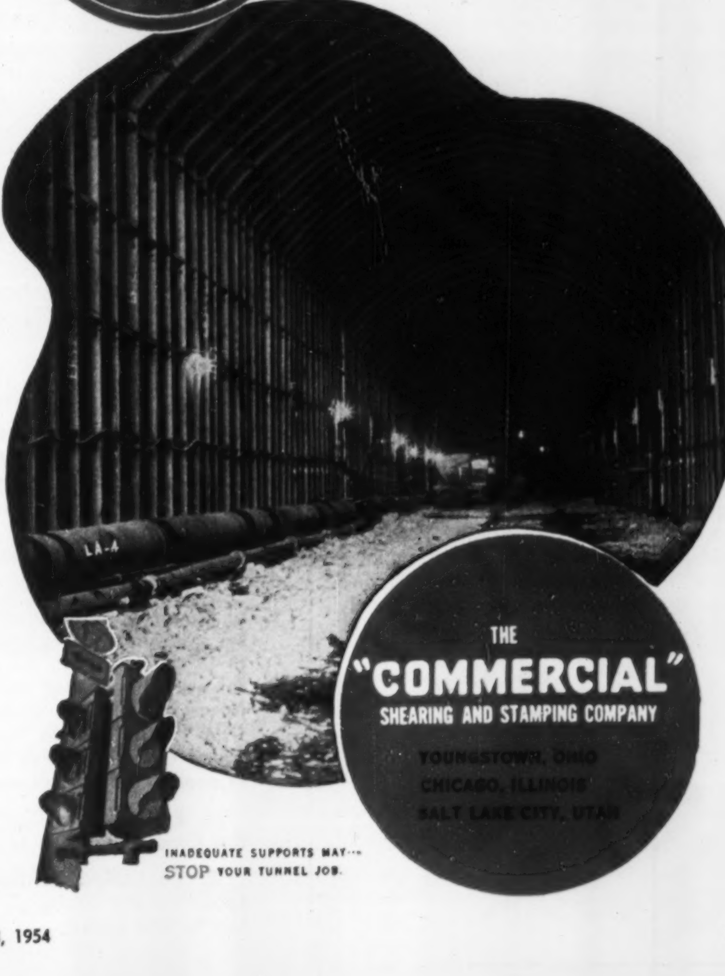
WITH "COMMERCIAL"

STEEL TUNNEL SUPPORTS

Full face headings in many hard ground tunnels can only be maintained when tunnel supports can be set quickly after the mucking operation. "Commercial" steel supports are completely fabricated and as they go into the tunnel portal you may be sure that they will fit, will erect into place quickly and only need field bolting by less skilled labor.

Steel provides the most economical and by all odds the safest ground support. Use "Commercial" steel supports, designed and produced by men who have had the greatest experience, are recognized specialists and whose product was used with such outstanding results in tunnels on the Pennsylvania Turnpike.

ALLEGHENY MOUNTAIN



INADEQUATE SUPPORTS MAY—
STOP YOUR TUNNEL JOB.

THE
"COMMERCIAL"
SHEARING AND STAMPING COMPANY
YOUNGSTOWN, OHIO
CHICAGO, ILLINOIS
SALT LAKE CITY, UTAH

EIMCO
WORLD'S FINEST TRACTOR EXCAVATOR

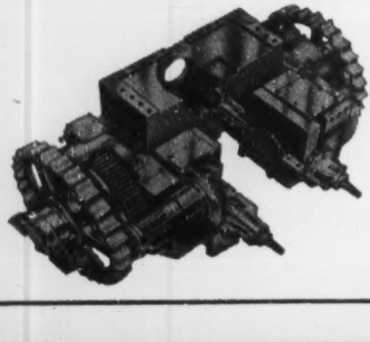
The Eimco 105 Tractor-Excavator is a heavy-duty machine, made for digging or excavating in rock and other difficult materials. For easy loading, larger buckets are available up to 2½ cubic yard capacity depending on material to be loaded.

All of the features of the Eimco 105 are covered by numerous patents issued or patents pending.

THE EIMCO 105 FINAL DRIVE

Eimco's final drive assembly is just one of the new and exclusive features of the new Eimco 105. The Eimco final drive is a rugged heavy-duty assembly made of heavy alloy steel shafts and gears and encased in heavy alloy steel cast housings. The design permits easy access to gearing through side plates. The anti-friction bearings are assembled in cages for perfect fits and longer life.

Notice the absence of troublesome clutches, brakes and gadgets in this sturdy assembly.



Eimco 105 Tractor Excavator is a new heavy-duty machine, thoroughly tested in the field, with all desirable features for a modern prime mover.

The 105 is a complete departure from ordinary tractor design in appearance and arrangement. The design features permit stronger construction, easier service when necessary and many other operating advantages such as:

1. Freedom from "leveritis" on the pulling and pushing of numerous hand levers, foot clutches, hand brake levers for steering and the necessity of stopping to change speeds or directions. With the 105 you use two small levers (one for each track) that can be held by one hand to give you forward motion — instant reverse or any degree of turn from "spin" turn to "feathered" turn. You can move the speed changing lever from one position to another while in motion under full load.

2. Full track oscillation even with attachments such as the Eimco loader.

3. Controlled loading speed through the Eimco two-speed bucket discharge mechanism. Easy light truck loading in low speed.

WITH COST SAVING ADVANTAGES

(Above right): Eimco 105 excavating material in pit with uneven bottom. This type of digging and loading is impossible with any other economical type equipment. (Above left): Fast moving 105 backs across to place bucket full of rock in truck which is parked on even spot in pit. (Below): The Eimco 105 can load trucks or railroad cars up to 11 ft. high. Average loading speed is 6 - 10 yards per minute in rock. Illustration on opposite page: The Eimco 105 shown here is loading a large truck from the end on a grade of approximately 20%. Two speed loading mechanism (exclusive on Eimcos) permits throwing load all the way back in this type of loading.

THE EIMCO CORPORATION

Salt Lake City, Utah, U.S.A.
Export Office: Eimco Bldg., 52 South St., New York City

B-3

4. Complete visibility with the operator well up front where he can see what's going on.

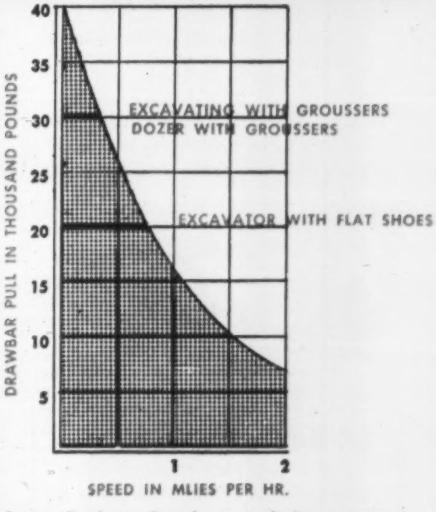
5. Greater production because of its easy handling and greater maneuverability.

6. Clutches never require adjustment.

Dependable operation is always a feature of Eimco equipment and in this the Eimco 105 is no exception. We have tried this machine under operating conditions where in a few short hours it has been subjected to more abuse than a high speed contractor can deal out in a month. The 105 can take it.

This rugged construction of the 105 was carefully planned. Every part has been designed for strength. Castings are all alloy steel. Wearing parts have been very carefully heat-treated. Machining tolerances have been held to rigid standards.

In addition to this, new designs have been incorporated in many of the individual pieces in order to give them greater strength, easier accessibility and in many cases to assure many years of operation with absolutely no attention except normal lubrication.



Drawbar pull charts based on preliminary tests showing relative comparisons.

New
PUMPS
for water
drainage

JACUZZI'S new self-priming CONTRACTORS' type PUMPS offer 22 advantages

Here are just 4 of 22 reasons why these newly-developed Jacuzzi pumps are your best buy:

1. **Higher Efficiency** Balanced type of priming port prevents loss of capacity due to recirculation of water.
2. **Less Wear** Renewable plate provides wear surface for impeller, prevents wear on case.
3. **Non-Clogging** Semi-open impellers pump muddy water with abrasives. Clearance is adjustable to compensate for wear.
4. **Easier Priming** Separate priming port eliminates special fittings or need for disturbing piping.

Available now in wide range of h.p. ratings. Choice of electric motor, gasoline engine or heavy-duty transmission head. Don't settle for less!

Jacuzzi BROS. INC.
RICHMOND, CALIFORNIA

Also:
St. Louis 23, Missouri • Binghamton, New York
Portland 14, Oregon • Monterrey, Mexico

Get the facts! Write nearest factory for bulletin "JCT-2" and data sheet "22 reasons why." Also data available on Jacuzzi's rugged sump pumps.

sembly is also said to make the Free-flow wellpoint more dependable. Since the screen assembly has no contact with the inner pipe it cannot rust to the pipe. Also, when pumping, the fine inner mesh screen can't pull away from the outer perforated brass screen to permit the entrance of sand or silt. However, when it is necessary to dismantle the unit for repairs, the screen may be removed simply by unscrewing the jet head. FOUNDATION EQUIPMENT CORP., 10-11 38TH AVE., LONG ISLAND CITY 1, N. Y.

Aluminum alloy saves both weight and money

66S, a new general purpose aluminum alloy, has been developed to bridge the gap between the lower strength of 61S and the higher strength of the more expensive 24S and 14S types.

The new alloy has a yield strength of 45,000 psi compared with 33,000 psi for structural steel. Tensile strength for sections of 66S up to ¼ in. thick is 50,000 psi (31 per cent over 61S); elongation is 8 per cent. Higher strengths are guaranteed in ¼-in. material and over.

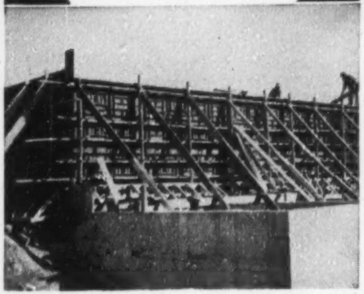
Special significance is attached to savings in weight by 66S since structural elements of thinner cross section will do the same job as thicker and therefore more expensive sections of low strength alloys. The improved alloy is also said to provide economy in construction because of its efficiency in welding as compared with harder alloys. HARVEY ALUMINUM, 19200 S. WESTERN AVE., TORRANCE, CALIF.

New Products briefs . . .

• **Air hose**—A new heavy duty air hose suitable for working pressures up to 400 psi is being manufactured by The B. F. Goodrich Co., Akron, Ohio. Called the Commander line, the hose is reinforced with a single braid of high tensile steel wire and is said to be more flexible than any other types of heavy duty air hose. It is manufactured in the following sizes: ½, ¾ and 1-in.

• **Preheat calculator**—A calculator using the slide rule principle to determine preheat temperature required when welding hardenable steels is available for a small sum from the Lincoln Electric Co., Cleveland 17, Ohio. Reissued and brought up to date with latest practice the calculator figures preheat in simple steps based on chemical analysis and thickness of steel.

Reduce costs and
INCREASE PROFITS
by renting these metal
forms for concrete



Economy Metal Forms save time, labor and material. They quickly lock together with a simple twist of a clamp. Standard units fit most jobs. Where needed, special forms can be fabricated to specification.

ECONOMY FORMS CORP.
Home Office: Des Moines, Iowa
DISTRICT SALES OFFICES: Kansas City, Mo. Omaha, Neb. • Minneapolis, Minn. • Fort Wayne, Ind. Cincinnati, Ohio • Cleveland, Ohio • Metuchen, N. J. Springfield, Mass. • Decatur, Ga. • Dallas, Texas Los Angeles, Calif. • Oakland, Calif. • Denver, Colo.

ECONOMY FORMS
metal forms for concrete construction

DRILLING CONTRACTORS
Diamond and Shot Core Borings
Dry Sample Borings
Grout Holes and Pressure Grouting
Foundation Testing for Bridges, Dams and other Heavy Structures

Manufacturers, also of Diamond Core Drilling Machines and complete accessory equipment, including all types of Diamond Drilling Bits. Ask for Bulletin 320.

SPRAGUE & HENWOOD, Inc.
Dept. E, Scranton 2, Penna.

DESIGNERS-CONSULTING
ENGINEERS
☆ Plant Layouts • • Estimates
☆ Investigations & Reports
☆ Supervision of Construction

INDUSTRIAL BUILDINGS
AIR CONDITIONING SYSTEMS
BRIDGES • GARAGES • LABORATORIES
STADIUMS • GRAND STANDS • FIELD HOUSES

THE OSBORN ENGINEERING COMPANY
7016 EUCLID AVENUE CLEVELAND 3, OHIO

PUBLICATIONS

Rubber sheet packing—A 4-page folder contains data on the weight, tensile strength and hardness of rubber sheet stocks, to be used as sheet packing or diaphragm packing. Folder 853 can be had from HAMILTON RUBBER MFG. CORP., TRENTON, N. J.

Reservoirs and standpipes—A new 24-page booklet on "Horton Steel Reservoirs and Standpipes" contains illustrations of installations from 50,000-gal to 10,000,000-gal capacity with cone, umbrella and ellipsoidal roofs and ornamental structures with special architectural features. Also a table of standard capacities, information on foundations, the advantages of pickling and painting the plates used in building steel reservoirs and standpipes and data on the use of suction tanks for fire protection.—CHICAGO BRIDGE & IRON CO., 332 S. MICHIGAN AVE., CHICAGO 4, ILL.

Wire rope—"The Right Rope for the Job" is a 40-page booklet that contains a section dealing with the selection of wire rope to be used on construction equipment. Several pages are devoted to weaving diagrams for back hoes, cranes, shovels, draglines, and skimmers. A small section deals with recommendations for wire rope use in dredging operations. — AMERICAN STEEL & WIRE CO., ROCKEFELLER BLDG., CLEVELAND 13, OHIO.

Prestressing units—A new booklet outlines the advantages of the Freyssinet method of prestressing concrete. The bulletin includes illustrated information on construction procedure, the units themselves, material standards and man-hour requirements. Also contained are typical references stating the structure, owner and contractor who have used the prestressing units. — INTERCONTINENTAL EQUIPMENT CO., INC., 120 BROADWAY, NEW YORK 5, N. Y.

Product design—Architects who design warehouses, industrial plants and other structures where materials handling equipment will be used can obtain a free conveying equipment catalog, coded for their A.I.A. file. The 28-page catalog covers specifications, recommended installation procedures, uses and other points that must be considered in designing for efficient handling operations. The booklet is entitled "Rapistan Material Flow Conveyors."—THE RAPIDS-STANDARD CO., INC., 342 RAPISTAN BLDG., GRAND RAPIDS 2, MICH.

ADVERTISERS IN THIS ISSUE

Allis-Chalmers Mfg. Co.	76, 77
American Hoist & Derrick Co.	74
American Lumber & Treating Co.	75
Armco Drainage & Metal Products, Inc.	2nd Cover
Barber-Greene Company	121
Belmont Iron Works	104
Bethlehem Steel Co.	95
Borden & Riley Co.	94
Builders-Providence, Inc.	73
Butler Mfg. Co.	60
Byers Co., A. M	116
Caterpillar Tractor Co.	40, 41
Cement Gun Company	119
Clarke Equipment Co., Construction Machinery Div.	59
Cleaver Brooks Company	81
Cleveland Trencher Co.	79
Clyde Iron Works, Inc.	69
Commercial Shearing & Stamping Co.	123
Detroit Diesel Engine Div., General Motors Corp.	13
Dicalite Div., Great Lakes Carbon Corp.	12
Dudgeon, Inc., Richard	91
Economy Forms Corp.	126
Eimco Corp., The	124, 125
Fairbanks-Morse Co.	3rd Cover
Flexible Road Joint Machine Co.	50, 51
Foundation Equip. Corp.	100
Franki Foundation Co.	67
Greenlee Tool Co.	62
Griffin Wellpoint Corp.	88
Gunite Concrete & Const. Co.	100
Gunite Construction Corp.	120
Harnischfeger Corp.	1
Harnischfeger Corp., Welding Div.	89
Hartford Fire Insurance Co.	6
Heltzel Steel Form & Iron Co.	78
Hough Co., Frank G.	118
Ideco Div., Dresser Stacey Co.	71
International Harvester Co.	63-66, 83
International Steel Co.	68
Intrusion-Prepakt, Inc.	54
Irving Subway Grating Co.	12
Jacuzzi Bros., Inc.	126
Jaeger Machine Co.	70
Johnson Co., C. S.	44, 45
Kensington Steel Co.	2
Kern Instrument Co.	94
Kinnear Mfg. Co.	91
Koehring Co., The	44-45
Kwix-Mix Co.	44, 45
Laughlin, Thomas Co.	87
LeRoi Company	92
Leschen & Sons Rope Co., A Div. of H. R. Porter Co.	56
LeTourneau-Westinghouse Co.	9
Lewis Asphalt Engineering Co.	119
Lone Star Cement Corp.	18
Madsen Iron Works, Inc.	16
Manitowoc Engineering Works	93
McKiernan-Terry Corp.	100
Moretrench Corp.	8
Northwest Engineering Company	3
Osborn Engineering Co.	126
Owen Bucket Co.	80
Parsons Co.	44, 45
Pennsylvania Drilling Co.	91
Phoenix Bridge Co.	120
Pioneer Engineering Works	39
Pittsburgh-Des Moines Steel Co.	47
Plasteel Products Co.	98
Portland Cement Assn.	31
Raymond Concrete Pile Co.	7
Rogers Bros. Corp.	122
Russell, Burdsall & Ward Bolt & Nut Co.	96
Rust-Oleum Corp.	49
Ryerson & Sons, Inc., Jos. T.	20
Servicised Products Corp.	120
Smith Co., S. Morgan	101
Sonoco Products Co.	102, 103
Spencer, White & Prentis, Inc.	88
Sprague & Henwood, Inc.	126
Standard Dry Wall Products	61
Steelcraft Mfg. Co.	85
Superior Concrete Accessories Inc.	90
Symons Clamp & Mfg. Co.	72
Texas Company	4, 5
Thew Shovel Co., The	11
Timken Roller Bearing Co.	4th Cover
Tinney Drilling Company	104
Transport Trailers, Inc.	72
Tube Turns, Inc.	33, 34
Turner-Halsey Company	14
Union Mercantile Co.	104
Unit Crane & Shovel Corp.	84
U. S. Steel Corp.	36, 37
Universal Form Clamp Co.	10
Universal Manufacturing Co.	58
Universal Sewer Pipe Corp.	86
Worthington Corp.	15
Professional Services	**115**

SEARCHLIGHT SECTION

(Classified Advertising)

H. E. Hilty, Mgr.

Employment	**108, 109**
Business Opportunities	**109**
Educational	**109**
Notices Proposal	**106, 107**
Equipment (For Rent, Sale, Wanted)	**109-115**

ENGINEERING NEWS-RECORD

330 West 42 St., New York 36—LOngacre 4-3000
D. S. Robertson, Advertising Sales Mgr.
Howard T. Olsen, Business Manager

ADVERTISING REPRESENTATIVES

New York, 36—330 W. 42 St.,
M. J. Storrz, E. A. Callahan, Jr.
Chicago, 11—520 No. Michigan Ave.,
F. G. Hudson, L. H. Hunt, W. G. Payne
San Francisco, 4—68 Post St.,
R. E. Dorland
Philadelphia, 3—17th and Sansom Sts.,
A. B. Cozzens
Cleveland, 15—Hanna Bldg.,
E. E. Duff, Jr.
Detroit, 26—Penobscot Bldg.,
B. F. Horn
St. Louis, 8—Continental Bldg.,
W. E. Donnell
Los Angeles, 17—1111 Wilshire Blvd.,
H. L. Keeler
Atlanta, 3—Rhodes-Haverty Bldg.,
R. H. Sidur
Dallas, 1—First National Bank Bldg.,
J. H. Cash

OTHER SALES OFFICES:

Pittsburgh, 22—738-39 Oliver Bldg.
Boston, 16—350 Park Square Bldg.
London, McGraw-Hill House

EDITORIALS

New billions for construction

THREE ANNOUNCEMENTS last week added two-and-a-half billion dollars of projects to the construction industry's backlog. Besides lending encouragement to those, including this journal, who have not been able to accept the gloomy predictions of a recession, each of the programs is in or related to the field of transportation, where many more billions of expenditures are sorely needed.

Most spectacular of the announcements, because it revealed plans for spending the biggest sums over the next two years, was that of the General Motors Corp. It will devote at least $1 billion and perhaps $1½ billion to expansion of its plants in all parts of the country. Most definite of the announcements in so far as location and type of projects are concerned, was that of the New York City Transit Authority, which will spend something more than $1 billion on new rapid-transit facilities, including $658 million for a Second Avenue subway. The third announcement—that the Port of New York Authority will spend $500 million over the next ten years—is notable for the curiosity it aroused over what projects are involved.

Any doubts that the Port Authority can find enough projects in the New York metropolitan region to justify the expenditure of a half billion dollars can be quickly dispelled by a little study of conditions. Nearly $100 million of the money already is committed to a third tube for the Lincoln Tunnel. An additional crossing of the Hudson River long has been under consideration, and this could take the form of a second deck on the George Washington Bridge or an entirely new bridge if a second deck would too greatly complicate the problem of approaches for the present structure. Although the Port Authority, in 1951, proposed a new tunnel in the vicinity of 14th St, growth in cross-river traffic since then has been greatest farther north, so that thinking has shifted to a location somewhere between the Lincoln Tunnel and the George Washington Bridge. And in that region a bridge crossing rather than a tunnel has been proposed most often.

Additional Hudson River crossings would require extensive and efficient approaches in Manhattan, and these might take the form of an expressway entirely across the island. The idea is not new, since it was only a few years ago that New York City's many-hatted commissioner, Robert Moses, tried to get the Port Authority to contribute $30 million toward a $90-million crosstown tunnel connecting the Lincoln Tunnel with the Queens Midtown Tunnel under the East River. The Port Authority refused on the ground that this was not its problem, but it might be more willing to cooperate with Mr. Moses on a traffic artery farther north. Such an artery could constitute both an approach to a new Hudson River crossing and, from Mr. Moses' standpoint, a new revenue-producing approach to his Triborough Bridge.

The thought of an agreement between the Port Authority and Mr. Moses brings in the idea of the long-talked-of Narrows Bridge between Brooklyn and Staten Island, which was listed recently as "subsequent construction" in a Moses report on New York expressways. From the Moses standpoint, letting the Port Authority build this bridge would solve his financing problem, while the Port Authority would benefit by bringing new traffic to its existing Staten Island-New Jersey bridges, which never have been good revenue-producers.

Nor are all the Port Authority project possibilities confined to motor traffic facilities. The authority could make many improvements to the airports under its control—and must do something soon to provide adequate terminal buildings at La Guardia and Idlewild, where the present facilities are a national disgrace.

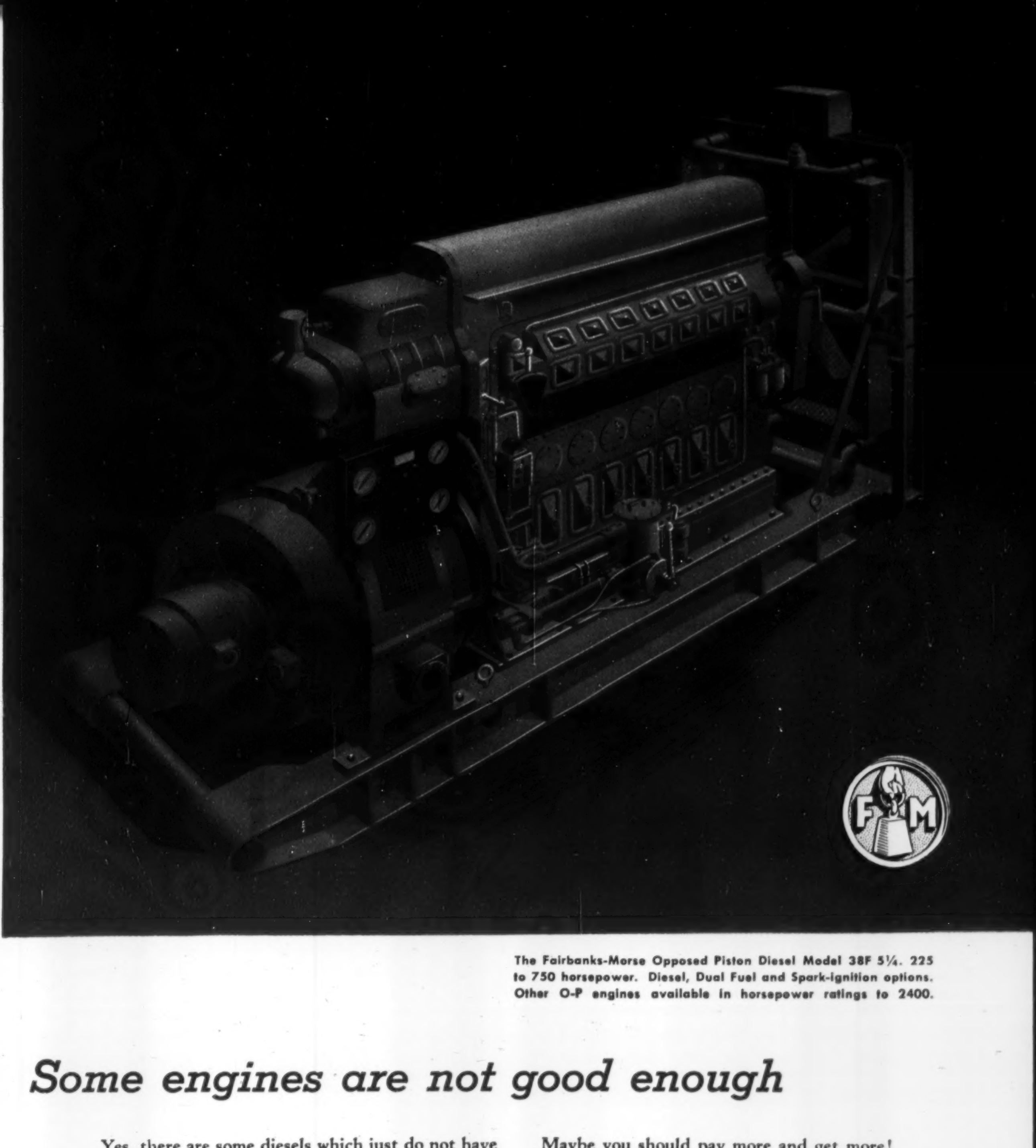
The Port Authority announcement said that its plans for spending $500 million involved "bold improvements." There is no lack of such needed improvements available, and even such a large sum as half a billion dollars is no more than a starter. What is true of New York City is true in relative degree throughout the country. Talk of a recession in construction seems premature at least. Such announcements as those by the New York authorities and General Motors create confidence that a drop-off in construction may be averted entirely.

Boom brings trouble

THE NOT UNUSUAL STORY of a city that successfully buys itself a building boom—and just as successfully a further traffic snarl—is being repeated again at Jacksonville, Fla. There, skyscrapers are rising (among other places) on the sites of downtown parking lots, so that not only will more cars be attracted to the area, but there will be fewer places to park them.

Nobody will argue the esthetic advantages of skyscrapers over parking lots, or probably their economic superiority. Nevertheless, large office buildings—whether tall or just big in area,—have service requirements alone that attract traffic. Their new occupants (particularly in a city without large rapid-transit facilities) will want to use their cars. And the car owners who used the lots now lost to the new buildings, will be forced into a widened hunt in order to find parking space.

The solution isn't simple, but the moral is plain: No city should allow schemes for attracting more congestion to develop without at the same time making provision for more parking, and for moving the increased traffic smoothly through the congested area.



The Fairbanks-Morse Opposed Piston Diesel Model 38F 5¼. 225 to 750 horsepower. Diesel, Dual Fuel and Spark-ignition options. Other O-P engines available in horsepower ratings to 2400.

Some engines are not good enough

Yes, there are some diesels which just do not have what it takes for the job. They cannot satisfy the owner's pride in smooth, trouble-free operation and are lacking in the ability to square a balance sheet of operational costs and profits. For the more difficult jobs, many engines are simply not good enough.

Maybe you should pay more and get more!

If you want more engine-hours with fewer man-hours, *then* you should have the F-M Opposed Piston Diesel which will cost a little more and give you much, *much* more.

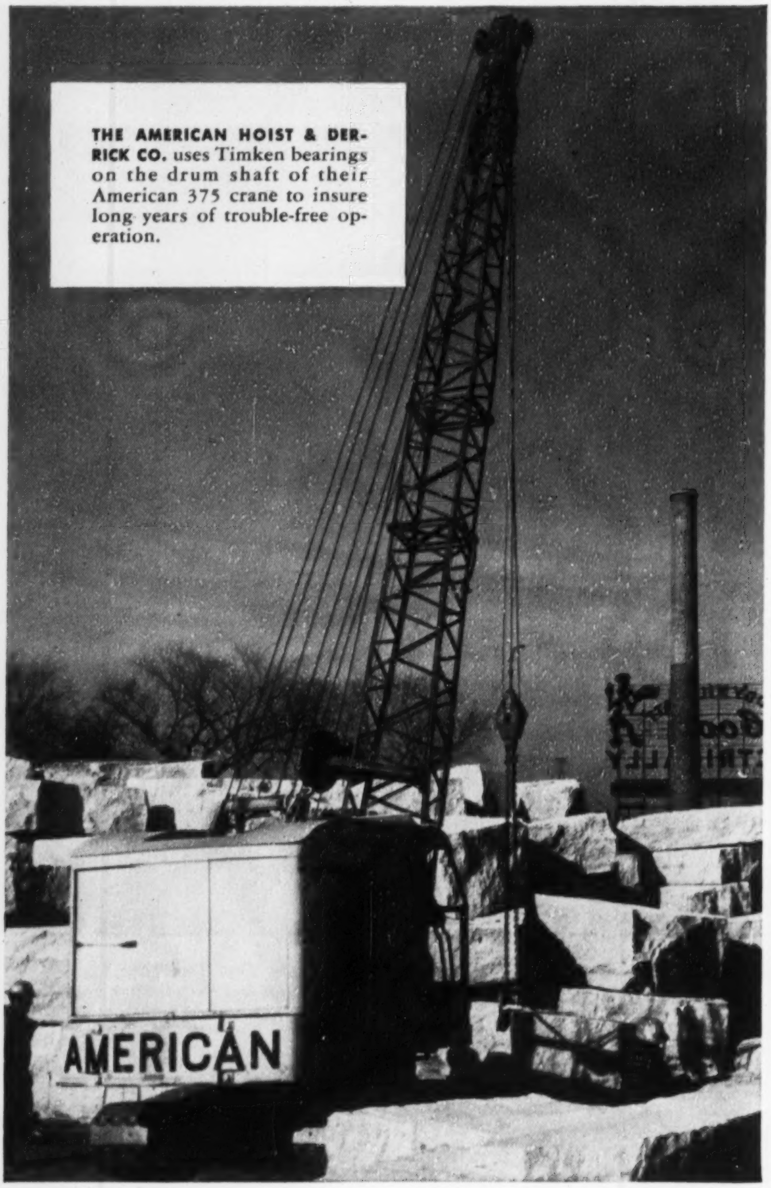
Fairbanks, Morse & Co., Chicago 5, Illinois.

FAIRBANKS-MORSE

a name worth remembering when you want the best

DIESEL AND DUAL FUEL ENGINES • DIESEL LOCOMOTIVES • RAIL CARS • ELECTRICAL MACHINERY • PUMPS • SCALES • HOME WATER SERVICE EQUIPMENT • FARM MACHINERY • MAGNETOS

Reaches 60 feet, lifts 17-ton load, lowers it like a feather with TIMKEN® bearings in the drum assembly



THE AMERICAN HOIST & DERRICK CO. uses Timken bearings on the drum shaft of their American 375 crane to insure long years of trouble-free operation.

JUST imagine the stresses involved in hoisting and lowering 17-ton loads and you'll see why the drum shaft assembly of this American 375 crane has to be rugged. That's why American Hoist and Derrick engineers mounted the hoisting drums on Timken® bearings.

Engineers know Timken bearings can take heavy crane loads easily. Line contact between rollers and races gives Timken bearings extra load-carrying capacity. And they have case-hardened rollers and races to provide wear-resistant surfaces and shock-resistant cores.

Maintenance problems are solved, too. Timken bearings keep housings and shafts concentric, making closures more effective in keeping out dust, dirt and water—keeping lubricant in. Lubricant costs are cut.

No extra thrust washers are needed. Timken bearings' tapered construction takes all radial, thrust and combination loads.

Timken bearings normally last the life of the machine they're in. Why not get all these advantages in your machinery, whether you build or buy it. Look for the trade-mark "Timken" stamped on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

IT'S TIMKEN BEARINGS FOR VALUE!

To get the best value in bearings you may find this simple formula helpful:

$$Value = \frac{quality + service + public\ acceptance}{price}$$

Obviously a big advantage *above* the line gives you more value than a small one *below*. No other bearing can match the uniform high quality, engineering and field service and overwhelming public acceptance you get with Timken bearings.

NOT JUST A BALL ○ NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION